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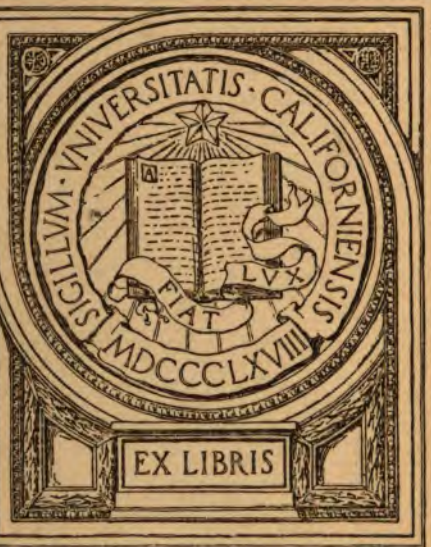

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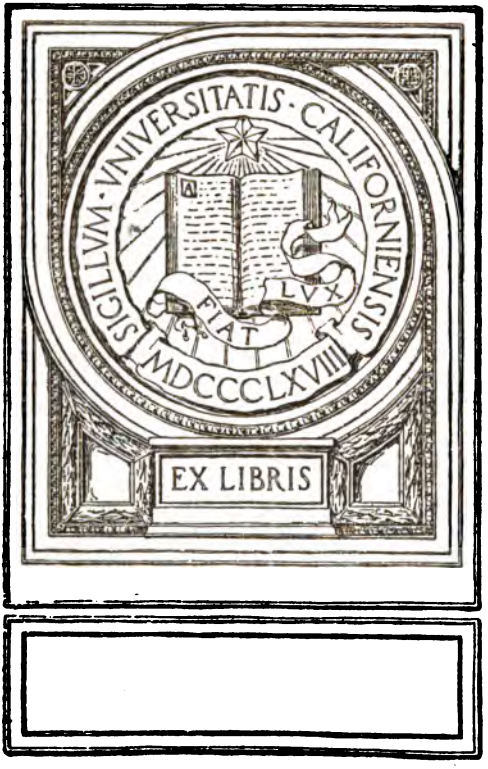

TRAVELS IN LYCIA,

MILYAS, AND THE CIBYRATIS,

IN COMPANY WITH

THE LATE REV. E. T. DANIELL.

BY

LIEUTENANT T. A. B. SPRATT, R.N., F.R.S.

OF THE MEDITERRANEAN HYDROGRAPHICAL SURVEY;

AND

PROFESSOR EDWARD FORBES, F.R.S.

OF KING'S COLLEGE, LONDON: AND THE GEOLOGICAL SURVEY;
LATE NATURALIST TO H.M. SURVEYING SHIP BEACON.

IN TWO VOLUMES.—VOL. II.

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TERMESSUS MAJOR

C Hullmandel's Patent Lithograph

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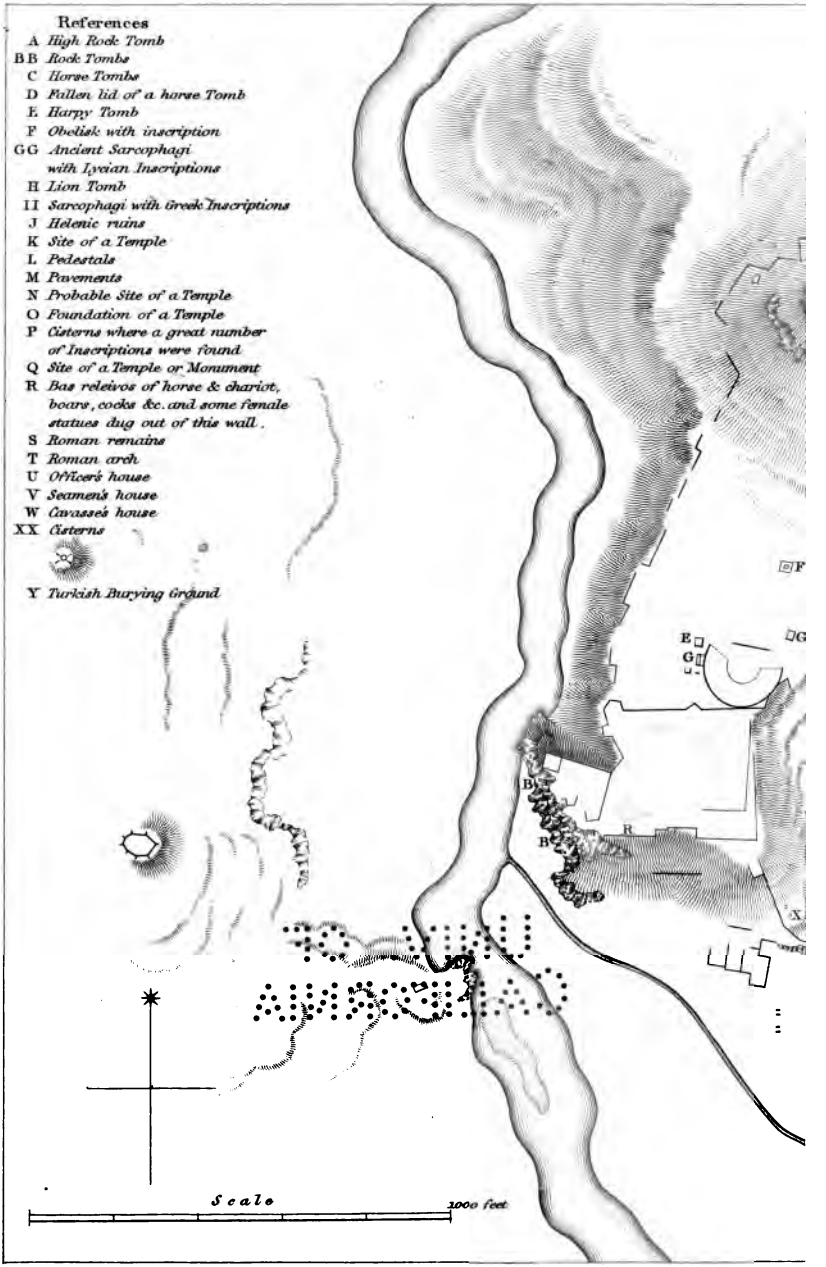
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Scale
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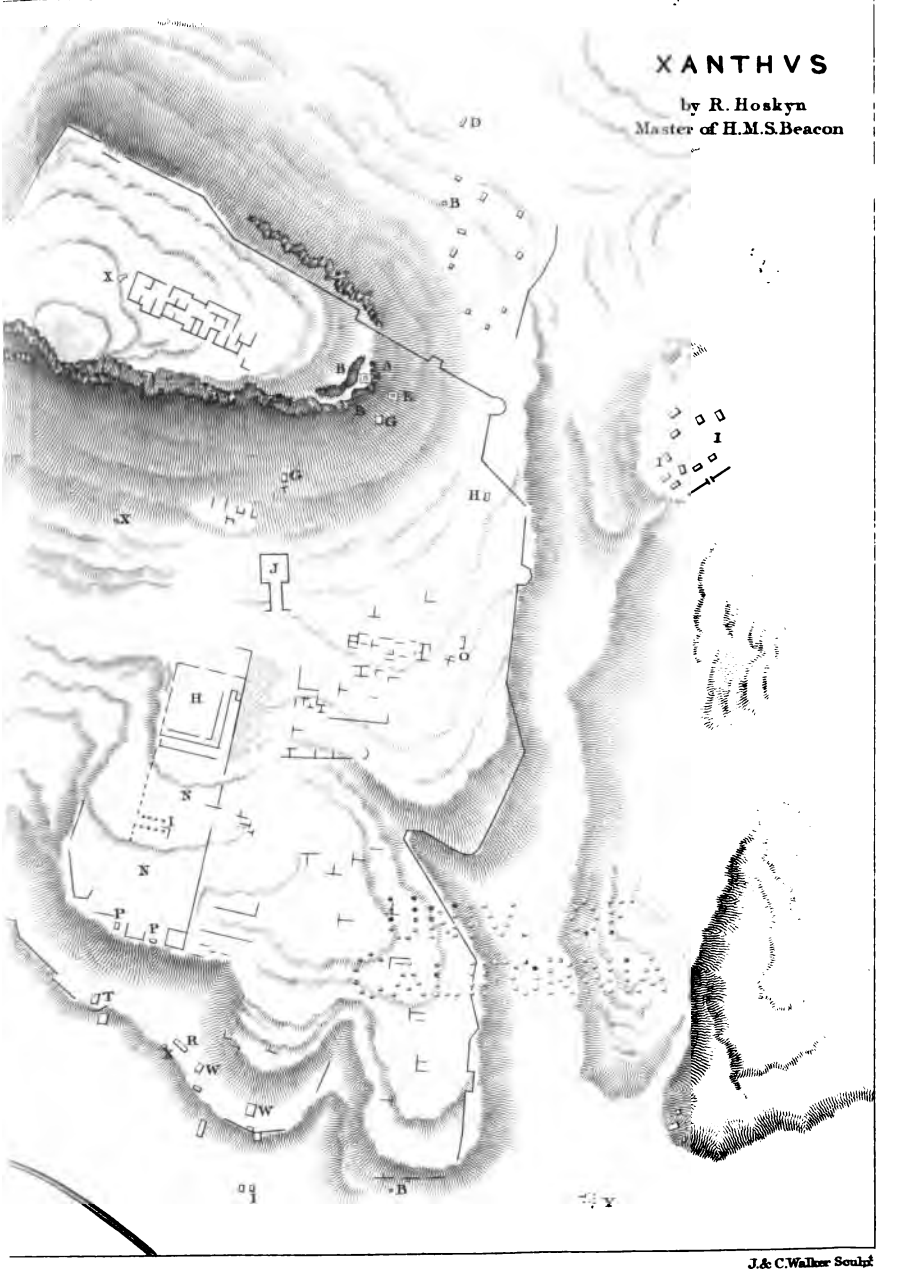
XANTHVS
by R. Hoskyn
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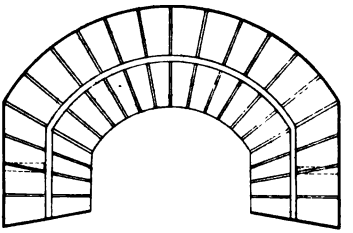

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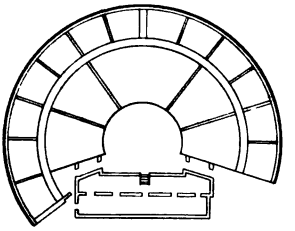

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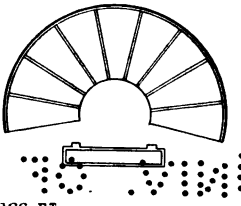

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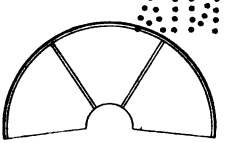

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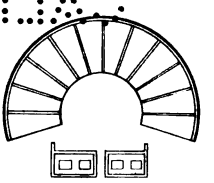

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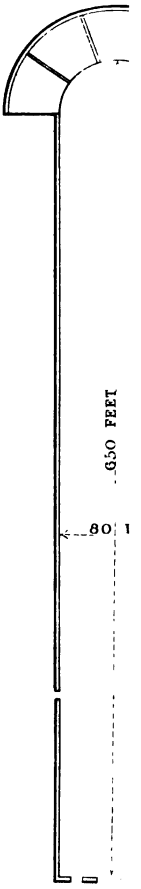

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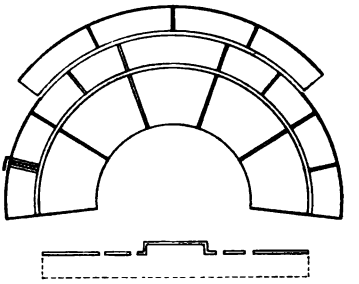

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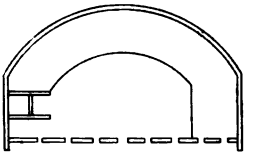

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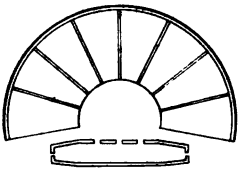

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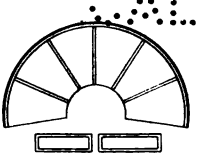

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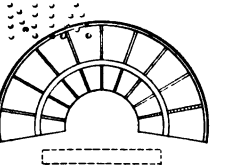

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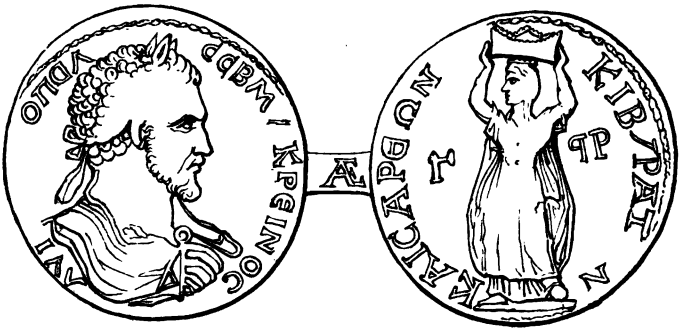


RARE COIN OF CIBYRA IN THE COLLECTION OF CAPTAIN GRAVES, R.N.

CHAPTER IX.

Rhodes.—Return of Mr. Daniell to Lycia.—His travels in Pisidia and Pamphylia.—Sites of Marmora? Lyrbe? Selge, Sylleum, Perge, Aspendus and Sidé.—Death of Mr. Daniell.

We rested three days at Leveesy, and then embarked in a crazy Turkish caique for Rhodes. We were three days on the passage, — not without dangers and adventures. The crew of our little vessel, which was no better than an open boat, consisted of an old and infirm Turk, who was owner and captain, a stout and active Arab and two little boys, the sons of the Turk. The passengers were our three selves, and our two Greeks — quite sufficient cargo

for such small craft. We coasted along the shores of Lycia and Caria to Cape Marmorice, and then crossed the open sea. The weather was hot and sultry, and the sea smooth. But on the second day, in the afternoon, a terrific squall of wind and rain nearly swamped our frail bark, and we were for some time in imminent danger. The old Turk resigned himself to what appeared impending destruction, and muttered, "Allah! Allah!" His little sons rolled themselves up in a corner, and lay silent and still: the Arab never gave up, but did his best to trim the caique and keep her afloat; and the Greeks lay howling with terror, vowing dollars and candlesticks to St. Nicholas, bidding higher and higher for life as the storm rose. When it passed away, we found ourselves driven far out of our track, and close to the rocks near the bay of Karagatch. Again we turned towards Rhodes, but it was too calm to make much way; and, when by nightfall we found ourselves near an island known on the charts as Rat Island, we gladly put in among the rocks, to light a fire and pass the night on *terra firma*. When at day-break we put out to sea, we were startled

by hearing voices in a creek not far from that in which we had slept, and, on rounding a rocky point of the island, saw the speakers — and a melancholy sight it was! There sat, drenched and shivering on the bare shore of this desolate islet, seven human beings in every stage of virulent leprosy. Three were far gone in the disease,—a woman and two men, apparently old. The men had lost their sight, and one was speechless; and all had lost the use of their extremities, which, indeed, appeared to have been eaten away. Two others had not lost the use of their hands; but their toes were gone, and they could scarcely walk. A fine young man and a well-grown rather handsome girl remained, and at a distance appeared unharmed; but on nearer approach the bandages on one foot of the female, and over one eye of the youth, told that the plague-spot was upon them too. Their tale was a short one. They were a family of lepers, Greeks, from the island of Syme, who wandered from port to port in their boat, fishing and collecting alms. In the storm of the day before they had been driven ashore in this little bay, and their boat lay much damaged on the beach.

They had no means of lighting a fire, and no provisions. We gave them a light, and as much food as we could spare, which we placed on a rock, to be taken away by the younger and least afflicted of the party; adding, what they seemed to prize even more than food, a quantity of tobacco. Promising to inform their countrymen and others at Rhodes respecting their misfortunes, and to procure for them assistance if possible, we sailed away from this sad interview with the victims of one of the most hideous and incurable afflictions of humanity, — with many blessings from the poor lepers, and thankful for having been the means, through the accident of a storm, in which we had nearly perished ourselves, of relieving, and possibly saving from a lingering death, these miserable people. Eventually we had the pleasure of hearing in Rhodes that they were enabled to get their boat once more afloat, and to leave the desert rock on which they had been cast.

When we arrived at Rhodes, we were welcomed by our excellent friend and countryman, W. Sandford, Esq., in whose hospitable mansion we took up our quarters. Through our

kind host, who lived in Turkish fashion, we had an opportunity of cultivating the acquaintance of several of the Turkish gentlemen of the town. We had come from Lycia strongly biassed in favour of the Turkish character — such as it is when seen uncorrupted by the vices of the capital, and displayed in a race comparatively pure. Mr. Daniell, like most European travellers, had commenced his journey prejudiced against the Mahometan part of the population: he concluded it with the strongest prepossessions in their favour. The disinterested attentions, frankness, and courtesy we had met with from all ranks — from pacha to peasant; the good-faith and honesty of the Lycian Turks, which contrasted strikingly with the clever knavery and selfishness of the Greek part of the population; and the good-sense everywhere shown by a people who had had scarcely any experience of travellers, and might without blame look upon us with suspicion as intruders,—the more so as the only Franks they were in the habit of seeing were reckless, smuggling, dissipated leech-merchants,—call for our warmest acknowledgments, and we should be very ungrateful if we did not thus put

them on record. All that Sir Charles Fellows has said in favour of the Turks of Asia Minor we can fully bear out. What we saw — and, what is more to the purpose, what Mr. Sandford *knew* — of the higher ranks of Turks in Rhodes, strengthened the good opinion we had contracted of their nation, and raised considerably our estimation of their intelligence and acquirements; which are certainly quite equal with, if not superior to, those of most Levantine Franks, though the latter be clad in European costume and familiar with European customs.

That the good points of the Turkish character, such as it displayed itself to us, lie deeper than in mere external politeness, natural mildness of disposition, and dislike of exertion, is evident, if we inquire into the provision made for the instruction of the rising generation among them. In the town of Rhodes the Osmanlis have a public library, containing about one thousand volumes, and placed in a neat building erected for the purpose, founded about fifty years ago by Turbend Agasi Achmet Aga. We had an interview with the present librarian, Hadgi Mehemet Effendi, a highly

intelligent old man, at his house, where we found him, buried among manuscripts, like a true book-worm. He took much interest in the account of what we had seen in Lycia, and discoursed, according to the learning of the East, on the ancient history of the country, as described in volumes around him. To the library under his charge, the students of the Madreseh, or higher schools, have access. These students, about one hundred and fifty in number, are instructed, boarded, and lodged out of funds provided from private bequest. There are five other schools for boys, the teachers of which are paid by the parents. The three principal number upwards of three hundred scholars. There are six schools for girls, attended by upwards of five hundred pupils, between four and twelve years of age. The teachers are females, and are paid by the parents. These facts show how alive our Turkish friends of Rhodes are to the value of instruction for the young. We may question and despise the quality of the education given; but the effort to educate, and the spirit which has led to the endowment of public institutions for free education, must command our respect, and force

us to acknowledge the good qualities of the people among whom it is displayed.*

During our stay with Mr. Sandford we fell in with Herr Loew of Posen, one of the party of German *savans* who had been sent by the King of Prussia on a mission of discovery in Asia Minor. This gentleman and Professor Schönbrun had chosen Lycia as the field of their researches; but, though we had all been in the country at the same time, and had often crossed each others' paths, we had never chanced to come in contact. After the departure of Mr. Daniell from Rhodes, Professor Schönbrun arrived, having opportunely fallen in with the officers of the Monarch, in which ship he crossed from Xanthus. We had a very delightful interview and conversation on the antiquities of Lycia, whilst he was in quarantine.

* The Osmanli or Mahometan population of Rhodes is about eight thousand, of whom upwards of seven thousand reside in the town. The Greeks of the island are about twenty-three thousand in number, the Jews about three thousand, and the Roman Catholics about one hundred and twenty. The chief exports of Rhodes are sponges, timber, honey, wax, valonia, oil, wine, onions, silk, oranges, lemons, pomegranates, and other fruits, shoes and red leather.—*Information communicated by W. Sandford, Esq.*

At Rhodes we met with Mr. Purdie, who had just been appointed British consul at Adalia, and was proceeding to his consulship. He proposed to go by a caique to Leveesy and travel overland to Adalia, visiting the ruins of Xanthus on the way; and expected to arrive there before the officers of the Monarch and Medea, and the parties under their charge, had embarked. As Mr. Daniell intended to avail himself of a kind invitation from the officers of the Monarch to take a passage in their ship to Athens, on which account he had left his portmanteau and other heavy baggage at Leveesy, he accompanied Mr. Purdie. When they arrived at Xanthus, the ruins were deserted. The English ships had sailed only the previous day. Our friend, instead of rejoining us, and returning to Rhodes by caique, unfortunately resolved to proceed to Adalia with the consul, and on the way was seized with fever; from which, however, he recovered at Adalia, under Mr. Purdie's care. Trusting too much in the strength of his constitution, and anxious to satisfy himself on certain points in the ancient geography of the country which still remained unsettled, he had hardly regained his strength

before he resolved to resume his excursions, and take the field at the hottest and most unhealthy season of the year. He had always dissented from our view of the position of Olbia; and, as at Rhodes we had not been able to consult the necessary works of reference, the arguments confirming our opinion, which have been set forth in a previous chapter, were not accessible to him. Had they been, we feel sure he would have placed Olbia, as we have done, in the immediate neighbourhood of Adalia; a position which his own researches go far to confirm. For if Olbia was near the sea, as there can be little doubt it was, judging from the accounts of the ancient authors who mention it, and was not at the site where we have fixed it, nor at Adalia itself, it must have been somewhere on the coast between that site and Cape Avova, close to Phaselis, where its territory began. "Near Cape Avova," writes Mr. Daniell in his last letter, of which we shall have to speak hereafter, "where there is not a vestige of any except middle-aged ruins, it is perfectly clear that there could not have been so great a fortress:" nor did he find any traces of such between that cape and the Pamphylian plain,

where Mount Climax terminates; as, indeed, Captain Beaufort had previously observed. "The route by Climax was extremely interesting and beautiful; and, with the exception of a few hours' ride over an excessively rocky and craggy road, to avoid wading through the sea like the son of Philip, the whole route from Adalia to Avova passes over plain. The site of Alexander's passage through the sea—*i.e.* the true Climax—is within a few hours' ride of Adalia; for, almost immediately after reaching the mountains, you come to it. This indeed, I fancy, appears from a careful examination of Captain Beaufort's expressions and map." Not finding Olbia by the sea, he sought for it in the mountains, and revisited Sorahajik and the Tchandeer valley, examining the ruins which had been reported to us as existing on the opposite side to Tchandeer Hissar. We have already given the reasons which induce us to adhere to the conjecture that the ruins at Sorahajik were those of Apollonia, and those at Tchandeer the site of Marmora. Mr. Daniell's second visit did not bring to light any inscriptions including the ancient names of either place; and in his letter he inclines to Pro-

fessor Schönbrun's conjecture, that the former marked the site of Marmora, whilst he fancied he had found in the latter the true position of Olbia. At Sorahajik he re-examined the inscription in which there seemed to be an abbreviation of the name of Apollonia, and throws doubts upon the correctness of our former reading of the letters.

He gives the following account of his visit to Tchandeer: "I passed from Sorahajik directly over the mountains, almost under the craggy part of that side of Beydagh looking towards Karditch, passed down the Tchandeer valley on the left bank of the main stream, and then through the village of Tchandeer. About an hour or so beyond, I came to tombs by the road-side. Here I bivouacked for two nights in a field, (there being no house near,) almost opposite Tchandeer Assar, the Genoese fortress, which was distinctly visible. From the tombs I ascended to the fortress, about an hour's walk up the mountain, and found several tombs with inscriptions, but no name; one or two rock-tombs; remains of extremely rude or rather unadorned architecture, all constructed for strength; and from the immense

quantity of the remains of this extensive mountain fortress, scattered over the almost perpendicular side of the hill, made up my mind at once that it must be Olbia. I passed the entire of next day among the ruins, and in making an upright sketch, in which I get the plain of Adalia, the opening of the valley, the sea and line of coast, to an immense extent, and the mountains beyond: in short, my object was, if I could, to show the vicinity of the sea below, (which answers one part of the description of Olbia,) with the great strength which the fortress derived from its mountain position, as well as the structure of its edifices, &c., nature herself having furnished an external wall of defence; for I could find none except at the very summit of the hill, where there are traces of its having been cut away to form defences, and in one place two sides of a door-way, with holes for bolts, bars, &c., cut out of the solid rock. And so enough of Olbia. I descended the valley with the torrent; that is to say, I did not enter the plain of Adalia over the pass by which we went, but by a road, and a much better one: sometimes crossing the main stream, and fol-

lowing it on the left side of those isolated craggy mountains at the entrance to the plain, on the right side of which we came down."

Mr. Daniell had no sooner returned to Adalia, after this visit to Climax,—during which he had been made very uncomfortable by the misconduct of his Greek surigees, who, though the best of their race we had ever met, proved tainted with the dishonest and lying spirit which has been ever a characteristic of their nation,—than he prepared to start anew to seek for Selge in Pisidia, respecting the position of which important city, as determined by Sir Charles Fellows, he had many doubts.

He first went from Adalia to the pass of Gule-Look, and revisited Termessus, in order to complete a drawing of that most interesting city which he had commenced when there with us in April. "From Gule-Look," he writes, "I followed the mountains to see what the Termessus of Koehler would prove to be. I came to an extraordinary duct cut in the solid rock of the plain, from twelve to fifteen feet wide, but I cannot say how deep. I crossed it by a bridge formed by leaving the rock uncut above, and hollowing it out into an arch

below. The water in the duct was running in the direction of Lagon; and, by following the road southward, doubtless something would have turned up, but I had not time to do everything, and I proceeded. My Greeks pretended that it only continued about an hour or two southward, but Lagon must have been five or six. I soon found that it must have come from one of the great sources which supply the Duden. A long narrow bridge, almost formed into a solid rock by the nature of the water, crossed a marshy pool, in the middle of which was a current passing through the arches, and immediately forming a river, running off, as the Greeks assured me, to the Duden. Just beyond the bridge they took me to a source in the mountain on the left, where the whole water issues at once, and gently, from the solid rock. After a mile or two I came to another source, which gushes with much more force and a slight fall, shortly after leaving the rock. It then almost immediately becomes a river, and runs as if to join the other; from which, I forgot to say, issues my straight cut duct. I should tell you, that I was positively informed at Gule-Look by my muleteers, that

there was a large city by the edge of the plain, not above five or six hours distant, and long before we should come to Karabunar. We arrived at it an hour or two before sunset. It looked a grand affair at a distance, but turned out to be composed entirely of middle-age ruins. It was close under the mountains, and a paved road ascended from it, turning, at the summit of the path, northward to Karabunar, and west towards Stenez. These ruins were evidently those met with by Koehler, and referred by Colonel Leake to Termessus. Here too is the site of Fellows' Pamphylian tomb and broken Lion—in his first work. He must have passed through Karabunar to come from his Selge to this pass. His valuation of the ruins is perfectly correct. They are evidently those of an extensive church or churches. I do not think it improbable that this may have been Lyrbe. I could not find a vestige of ancient masonry standing, except the tombs by the side of the paved road, and a few at the bottom: there are plenty of slabs and broken pedestals scattered on the plain, in a Turkish burying-ground. I need not say that I could find no name; but I

copied the few inscriptions which were legible throughout.

"It had been my original intention, when I thought I must go so far north as Karabunar, to go on to Gherme, and perhaps to Aglasoon, with an especial object of seeing whether I could ascertain if Fellows had been right in calling it Selge, or Arundel in giving us his almost unwilling conviction that it was Cremna; but when I returned to my men in the evening, and began to question both as to whether they knew of any city between Gherme and Bolcas, along that ridge of mountains which closes in the great Pamphylian and Pisidian plain, from almost the sea to where, I presume, was Gherme itself, the older man pointed to the highest ridge of the mountain which we had first seen pink in the sunset on our descent to Phineka, and said that nineteen years ago he had been there, and that he remembered great ruins, but could not describe them; that they lay behind the mountain in the valley beyond, at a village called Serhghe: this he pronounced so like Selge that I immediately said, 'Then we will give up Karabunar, and all the places on that road, and go at once to Selge.'. He knew of no road from where we

were, but proposed going the next day to Mortana (Perge), and so on till we came to Bolcas, where he would take a guide, as he thought that the proper road led from thence.

"In passing from these ruins to Perge, I crossed no river. I presume that the two sources from the rock of the preceding day must be, after all, the veritable sources of the Duden; unless by chance my route happened to lie in some part of that extraordinary plain where the main current has an underground course. I did not stay long at Perge, but fortunately made a sketch, intending to return some fine day from Adalia with Purdie.

"I passed on that evening, and crossed the Cestrus. My object had been to reach, if possible, 'the city on a hill, conspicuous from Perge,' but at which my rather unwilling muleteers declared there was no water: so I bivouacked at a well, amid a swarm of musquitoes, a mile or two beyond the Cestrus, and passed on the next morning to Assar, the modern name of the city in question. This, you will be surprised to hear, lies due compass-east of Perge, but is in truth Fellows' Isionda.* There has been a magni-

* See his map and description in his First Tour.

ficent city on the top of this hill, possibly more strong than decorated; but the enormous labour which must have been expended in cutting the solid rock into a natural rampart almost along the whole south side of the summit,—so that they seem to have lowered the surface of the city with a view to its defence,—and the immense number of enormous cisterns for water hewn in the same way, as well as a long series of hewn steps apparently forming the ancient grand entrance to the upper town, with the remains of temples and gateways cut in the same way, prove that its inhabitants must have been very numerous and very powerful.

"The north-eastern corner of the upper city is capped by a mixture of ancient and middle-age architecture; the ancient, of the same structure and date as the great square hall of Termessus. It seems to have been the palace. In one remarkable building connected with it, which, during the middle ages, had been converted into a Christian church, there is a very beautiful doorway, and two windows. On one of the side-posts of the doorway I found a long and closely cut inscription in a language utterly unintelligible to me, formed in part of Greek, with the

addition of the following sprinkled here and there.*

"Unfortunately, either the priests while the building was a church, or, as Mr. Fellows would say, 'some later people,' who converted the whole structure, as well as the adjoining middle-age masonry, into a fortress, thought the original incision for the bolts and bars not sufficient, and have cut a square hole towards the end of the lines near the bottom of the inscription, while the weather has damaged the rest of the stone along the whole right side of it; so that, although there are several words quite perfect, there is no one line thoroughly so. Without more time than I, with the object I had in view, could give, it could not be made out. I cannot think this place Isionda; but from the extent of its ecclesiastical buildings (*v.* Leake), and from the absence of any strong city in the neighbourhood with such buildings, I cannot but think that it was Sylleum.* There is not a single

* They are not given in the letter.

† That Mr. Daniell was right in determining these remarkable ruins to be the site of Sylleum, and not of Isionda, there can scarcely be a question. Their situation at the opposite side of the Cestrus to Perge, their distance from the sea, their great strength, and their conspicuous position on a high hill,

tomb to be found, except, I think, a solitary rock-tomb or two, either in the city above or on the plain below (*v.* Fellows' Asia Minor).

"The direction of Boz-boroom, the great mountain behind which I was informed that Serhghe lay, seemed to indicate to me that this must be the place from which we should start; and I found that I was right. We could find no guide, but our course was pointed out to us by a man who had come from Serhghe the day before, between a gorge of the nearer mountains, which it did not seem difficult to track, and which the older guide found, when he got to the top, was the very road he himself had gone nineteen years before. He knew his route by a source at which we had just arrived, and from which a large quantity of water gushed at once, and this he told me was called Karamou-

agree exactly with the accounts of ancient authors. According to Arrian, Sylleum was so strong that it resisted Alexander; and Strabo describes the city as so lofty that it was visible from Perge. Colonel Leake (on the authority of Hierocles and the Ecclesiastical Notices,) states that "it continued to be a place of importance under the Byzantine empire, and became the principal bishopric of the province of Pamphylia upon the decline of Perge, and superior even in rank to Attaleia." (Leake's Asia Minor, p. 195.) See also Dr. Cramer, ii. p. 280.

hari: it was in a very romantic pass in the mountains, and very high up. We went on about an hour, and came to an Urook encampment, near which we halted for the night under a tree. This was in a more open plain than Karamouhari, and was called Akmouhari. The next morning we proceeded early on our way, and after about an hour and a half reached the top of the pass, from whence there was a splendid view to the north-west, looking all over the mountains; among which I presume were Sagalassus, and Fellows' Selge. Here we had to descend a little, and rise again to another series of huts called Karagatch; where we halted for several hours, in order to induce a very old man, who would not start in the middle of the day, to accompany us to Serhghe. Among these mountaineers, who had never seen a Frank before, we learnt that there were *chok* ruins at Serhghe. In consequence of our delay, we did not reach them that night, but proceeded to the very summit of the pass of the great ridge of Bozboroom, which lay immediately north of us: the waters which we had left passing towards the Cestrus, i. e. on the western side of the ridge, and the waters to which we were coming, run-

ning to the Eurymedon on the east; which latter noble river soon after became distinctly visible, running in a south-easterly direction through a magnificent valley between the first great range of mountains from Adalia, and that extremely distant square ridgy range which you may have remembered seeing at the far eastern end of the plain of Adalia. I had now this great square ridge directly opposite me, due compass-east, gradually opening more and more to us. At length we turned suddenly to the left over the top of the slope, and bivouacked for the night, it being nearly dark. Finding myself so completely between the upper waters of the Cestrus and the Eurymedon greatly raised my hopes; but nothing was certain, for I found that evening to my annoyance, looking into Arundel and other books, that there are several Serhghes scattered over Asia Minor. In the morning I asked the old man in what direction the ruins lay: he pointed to the next slope from Boz-boroom, but it was so nearly in the sun's eye that I could scarce see anything. We descended into the valley which lay between us, passed the bed of a torrent separating the two slopes, and to my great surprise, within half an hour came to some vestiges,

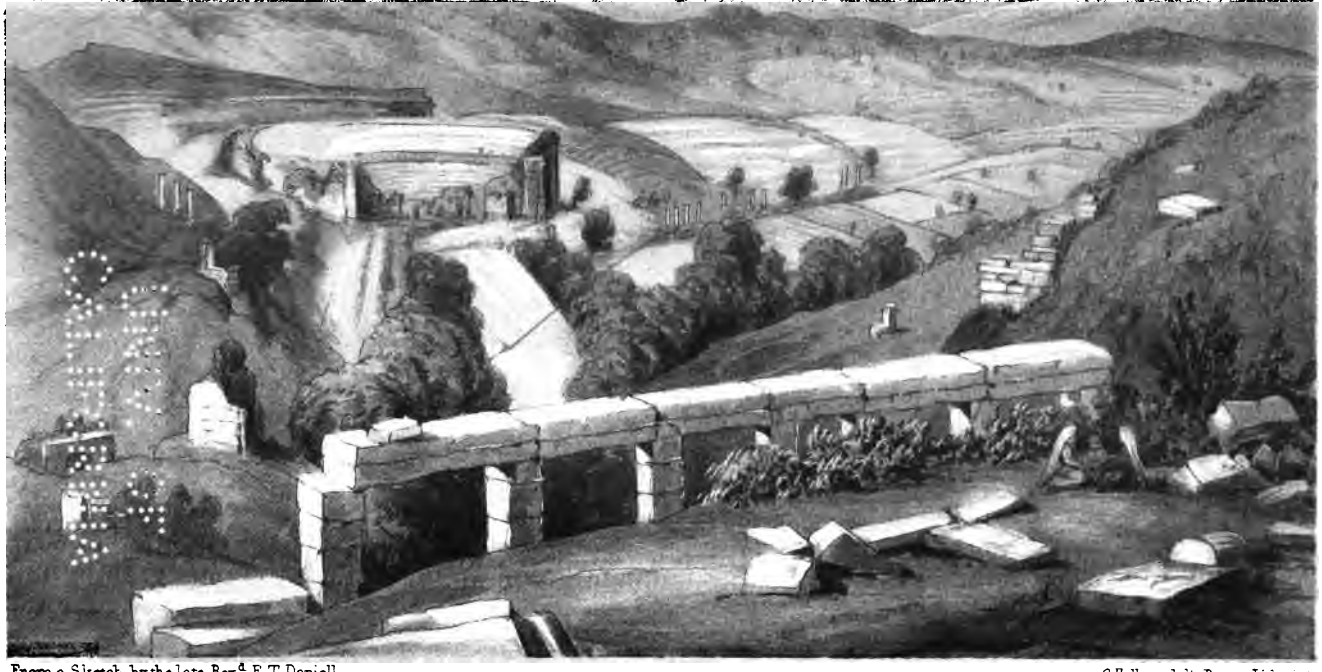
which increased at every step, till I found myself among a host of remains which the man told me was Serhghe itself. For the moment I was disappointed, supposing I had seen the whole; but in a minute or two, getting over the top of the slope on the southern side of which these vestiges were scattered, I came suddenly in view of a theatre magnificently situated, a stadium, a row of Ionic columns standing, and a square below, which must have been the Agora, though now a corn-field. Standing myself upon a large square platform of ancient pavement, with a beautiful foreground of a very perfect colonnade and other ruins running down the hill towards one end of the stadium, at the other end of which, at a most beautiful angle, stood the theatre; and when I turned to the left, and saw another face of old Boz-boroom,—the eastern,—I think in all my life I never saw such a mountain view, so utterly different from anything I had seen elsewhere. The entire of those two huge slopes over which I had last passed, as far as my route lay, is composed of a very coarse conglomerate, which has been worn away into a succession of circular snail-shaped hillocks; and round and round these hillocks, in succession, there stand

out little upright blocks of conglomerate; so that, looking up the side of this great mountain, if I had attempted to draw all the gradations of the layers of blocks and snails, it would have taken me two or three days to have made the outline. From this great slope of horizontal parallel lines rose perpendicularly the limestone peak of Bozboroom, and between every snail there seemed to be level plots of alluvial soil the whole way up. At least, such was the character of the country in my immediate neighbourhood. As far as I could see up the mountain, and certainly all round Serhghe itself, all these flat surfaces of alluvium were of the most fertile character; though I found, a day or two after, that I was at an elevation where old Siddle's thermometer boiled at 204¾ degrees. Some of the wildest-looking mountaineers I ever saw were collected under a walnut-tree, in a field adjoining the one which I presume was the Agora, and had hailed the muleteers to go down. When I went, I found them bivouacked under a neighbouring walnut-tree; and, as I went, I need not tell you that the extraordinary fertility into which I had come in this very elevated region immensely raised my hopes, for the harvest was all in; and being

thrashed on the 22nd of July,—the stadium through which I passed being a corn-field as well as that in which I bivouacked. I was wonderfully well received by these mountaineers, who had never seen but one Frank before, and him a few months ago, only for a night. 'He was a man with a beard,' they said, 'who did nothing but pick up stones, throw some down again, and put others into his pocket.' It was quite clear who my friend was.*

"I measured the theatre: it was three hundred and ninety feet wide. I then thought it as well to go and begin a sketch of the first view that struck me; but from the extremely intricate character of my abominable snails with their layers of conglomerated blocks, from the difficult perspective of the theatre from the spot where I saw it, as well as the indescribable beauty of the range of mountains running to the north-east, which bounded the sketch, I did not finish my outline till nearly four o'clock. I sent the

* The Frank alluded to was, doubtless, Professor Schönbrun, who, when at Rhodes, after Mr. Daniell's departure, told us that he had visited the Selge of Sir C. Fellows, and proved it to be Cremna; and that he had found another large city, which he believed to be the true Selge. This we communicated by letter to Mr. Daniell when he was at Adalia.



From a Sketch by the late Rev.d E.T. Daniell.

C Hullmandel's Patent Lithotint

SELGE

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old man home with the umbrella and traps, and started myself in search of tombs and inscriptions. Strange to say, I, that afternoon, could find but one tomb, and that a built sarcophagus: there had been an inscription at the end, but, either from the badness of the limestone, or its elevated position, scarcely a letter could be made out; and this I afterwards found to be the case in every instance where inscriptions occur in Serhghe. Having failed at this tomb, I walked in the direction of a Turkish burial-ground in hopes of better success; but I will say at once, that nothing was to be made out on any of the few tombs which I found, on this or the three succeeding days. The last day I found a longer inscription; but it had shared, with time, the same fate as the rest. The following morning, before it was time to begin to colour, I began measuring and planning. At ten o'clock I went to my colouring, and at three or four recontinued my exploring; and so passed all four days. On the third day I made a sketch, looking back upon the height from where I had made my first, with standing Ionic columns for the foreground: and on my fourth day I determined to attempt the glories of Boz-boroom; but

I had scarcely began to colour when the whole effect was changed by a thunder-storm, and huge rolling clouds, not concealing the mountain, but by their shadows so completely changing the effect, that, perhaps, I have made a rather more dashing sketch than I otherwise should have done, though I have not brought away the true characteristic of the mountain. The rain reached me at two o'clock, just as I was about to complete my foreground, but I can manage to make something of it. When the rain was over, I proceeded with my usual evening's occupation; and so ended my four days at Serhghe.*

"I will now tell you what corroborative evidence I have found (of the identity of Serhghe with Selge), beyond its site respecting the rivers, its elevated position combined with fertility, and the resemblance of the modern to the ancient name. Whether I consider a Christian church,

* The sketches so graphically described in this letter, with nearly two hundred other drawings of large size, made by our lamented friend during his travels in Greece, Egypt, Syria, and Asia Minor, are now in the possession of Mr. Daniell's relatives. They are as remarkable for artistic feeling and truth of expression, as for the life-like idea they convey of Eastern scenery. It is to be hoped that, sooner or later, *facsimiles* will be published of a selection of these fine drawings.

which rises just above my paved upper platform, to have been erected in the Acropolis; and the platform, with its adjoining splendour, to have been part of the said Acropolis: or whether, as is more probable, an upper summit of a snail, which is crowned with the remains of a rectangular building one hundred feet long by fifty feet wide, to have been it: it is quite clear that the Acropolis of this city was not a fortress, but a temple; and I am most inclined to believe that the last-mentioned building was the very temple of Jupiter which formed the Acropolis of Selge. It unquestionably was a temple, as the number of columns scattered within and about its three and a half feet-wide walls show; and along the slope arising towards it there are, every here and there, steps cut in the rocks, which evidently led from my paved platform towards it.*

"The next, and which you will perhaps think a stronger evidence, was this: the first day I

* The force of this evidence, on which Mr. Daniell justly lays so much stress, depends on a passage in the account given by Polybius, of the invasion of the territory of Selge by the army of Achæus, under the command of Garsyeris. When, through the treachery of Logbasis, the city was about to be delivered to Achæus, Garsyeris is said to have led his division of the troops against the Cesbidium, or temple of

reached the place I began calling for coins; one or two very doubtful affairs were brought, but I gave half a piastre for them, and said I would do the same for any that suited me. During the time I was there, I collected, I believe, between forty and sixty, and put them away, and have not seen them since I have been ill, — I will tell you the number in a postscript.* Of these, not one contained the usual symbol of the town I was in search of; but a very great many either ΣΕΛ or ΣΕ, or Σ alone, and a Roman one had ΣΕΛΓΕΩΝ on it. The mass of them had the same reverse, viz. a bull-headed head of Hercules; and I should say, from memory, that nearly forty of the batch may be identified, either by the inscription or the reverse, with the town in question. I got four little funny silver fellows very much alike; but though with the same design, yet with a singular variation of features in a full face on one side. Perhaps the follow-

Jupiter, *which was the Acropolis.* (Polybius, v.) The fertility of the district, its mountainous character, and position near the sources of the Eurymedon and Cestrus, are mentioned by Strabo (xii.), who bears testimony to the importance of Selge, and the extent of the population. Arrian also writes of Selge as a city of consequence.

* This was never written.

ing fact may interest you as a corroboration. Two or three of these coins contained either the whole or part of the letters KET, the commencement of Ketenna, unquestionably the true orthography of the name of that city, the people of which Strabo calls Catenneans, and other authors Etennians.*

"I left this place on a Tuesday morning. I had a hint on the Sunday night that the people were afraid of what I was about, and they wished I would go on the following day: I told them that I was going the day after the morrow; but that, if they said another word upon the subject, I would stay a week, and send to my friend the Pacha of Adalia (at Stenez), till one of the Greek muleteers should return with a cavass to take their Aga down to Stenez, and teach him how he was to treat us Frank travellers, and make him pay all the expenses of my delay and the cavass's journey; that I was surprised that they were afraid of me, when they were all so civil. Of course, after this, they immediately retired, and took some supper with my men, and said 'Allah!'

"I have scarcely time or space to describe pro-

* Their territory lay to the east of Selge, towards the confines of Cilicia and Isauria. Cramer, ii. p. 312.

perly my return home. Of course I descended from Serhghe by the valley of the Eurymedon. As soon as I had left the upper regions and the conglomerates, and had crossed the Eurymedon at a stupendous gorge through which the river runs, I came to an entire change of geological structure, and a succession of pine woods, growing, if I mistake not, on serpentine. It was only when we emerged from the narrow part of the valley, and came, after a day and a half's hard travelling from Serhghe, within two hours and a half or so from Bolcas,—the true position of which is between six and eight miles of the sea,—that we left this barren and uninteresting region of pine forests, having the Eurymedon always on our right. Fellows is mistaken about Bolcas: first, as to its position, which is really on the right bank of the Eurymedon; then as to its name, which is really, beyond all manner of question, Aspendus; then as to the lake Capria, which is a great marsh several hours in circumference, and which to the present day is called by the same name as the river,—λιμνη by the Greeks, and Capru by the Turks; so that there in reality is, virtually, no difference between the ancient name and the modern; for when I told my guides

to ask if there was a λιμνη in the neighbourhood, the Turk answered there was; and when I asked if it had a name, he replied, 'Capru, like the river.' This is all very satisfactory. The Eurymedon, from the south side of this lofty city, can be seen at different points till it enters the sea. Then I could also make out its mouth.

"On the 28th of July I foolishly decided upon going to Eski Adalia. I was anxious, having a crotchet about the true Sylleum, to see what sort of a place Fellows's Sylleum was. It consisted of three or four isolated towers, one or two blocks laying about in the neighbourhood, and not a vestige of a middle-age, or ecclesiastical ruin, near. It appeared to me like a border fortress between the Sidati and the Aspendians; and some of the remains about it might have been those of a small temple, which seems, as in the case of the Massicytus Tloean fortress, (usually) to have accompanied these isolated residences of soldiers. We were forced to sleep in a very moderate sort of a place this Friday night. I suspected the fever from the nature of the neighbourhood of the village. The next morning we rode to the sea-shore, a little to the east of south. I was in hopes we were coming at once

to Sidé, but saw its huge theatre towering above the flat promontory at least six miles off, and I had to ride along a burning beach exposed to the sun. When I arrived I was so knocked up that, on reaching the theatre itself, before I attempted to make my way through the interminable bushes which almost prevented one entering it, I lay down in a shady place and slept for two hours, till the muleteer woke me. I then made the attempt, and certainly do confess I think Beaufort on this point has extolled it too much. He confesses, I think, that he did not see Myra, but he saw Patara, which is infinitely more perfect than this. If Fellows, however, is more right in his appreciation of the theatre, he is completely out respecting the walls of the town. There are plenty of magnificent walls, of admirable ancient structure, surrounding the inland part of the town. In short, Beaufort's description of this part of the coast seems to me to be very correct. I was so anxious to get back, from some sort of presentiment, that I could not even sleep there (at Sidé). I hurried from the ruins to the well, a little to the west of them, and, perhaps rashly, went into the sea when my dinner was dressing. I ordered

my men to get ready to go back, shortly after their dinner, to the village where we had slept the night before, as there was no other. The next morning I started, as early as I could get my men off, to try and get a little rice and coffee at a bazaar held at twelve o'clock at the bridge of Aspendus. * * * * And here ends the history of my tour. Having bivouacked an hour or two before Stauros on the Sunday night, ill with fever, I started before sunrise on Monday morning and reached Adalia."

This account of Mr. Daniell's last journey, he dictated to a clerk of Mr. Purdie's at Adalia, and sent to us from thence a fortnight before his death. The remainder of the letter is occupied with the details of his illness, and of the kind attentions he received from the Consul during its continuance. Towards the conclusion, he adds the following important information: "I forgot to say that between Termessus and the pass by which Koehler travelled, there is a pass to Stenez, by which Manlius might have come, so as to make Lagon his first town from Mandropolis."

The fever contracted on this journey by our lamented friend destroyed him. The presenti-

ment which hurried him to Adalia proved a presentiment of death. But at the time he dictated the long and valuable letter we have just given, he had rallied, and believed himself about to recover, and looked forward to rejoining us at Smyrna. Alas! an act of imprudence—sleeping in the open air, on the terrace of his dwelling, to which he had dragged himself during the absence of his friend—brought on a relapse; and in seven days he fell a victim to his zeal and enterprise.

From a Sketch by the late Revd E T Daniell

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ADALIA.

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CHAPTER X.

On the people who constructed the tombs and used the language usually called Lycian.

In the following pages we are induced to bring together such evidences, historical and existing, as seem to throw light on the history and origin of the monuments,—rock-tombs of a peculiar architecture,—and the language of the inscriptions carved upon them, now found in Lycia.

But in thus venturing to offer an opinion, formed, however, from a careful inquiry into the value of these evidences, as far as we are able to judge, we do so with deference to those who have hitherto adhered to the generally received opinion of the Lycian origin, of the monuments and inscriptions rather than to that of their having been the work of foreign settlers. And in putting forward our arguments and conclusions, we do so with no other pretension than that

of inducing others more capable of investigating the subject, to give it a closer inquiry; so as to disprove or verify the views we at present entertain.

It will be necessary to preface our observations with a brief sketch of the early history of the country as transmitted to us by Homer and Herodotus.

From the Iliad little more can be learnt than that the Lycians at the siege of Troy were a warlike and powerful nation, affording throughout the war distinguished services to the Trojans, under their several leaders, Glaucus, Sarpedon, and Pandarus. (Iliad, B. v. and xii.)

Herodotus being from the neighbouring province of Caria is more minute in the history of the early inhabitants of Lycia, omitting nothing, apparently traditional or otherwise, known in his time respecting their origin. But respecting the condition of the country in his own time his narrative is unfortunately too brief; for it was then that the so-called Lycian rock-tombs, monuments and the language upon them, were first sculptured and inscribed according to the opinion of the scholars who have investigated the inscriptions. It is, in consequence, the

epoch most interesting as bearing on Lycian History. Herodotus has, however, briefly noticed that "those inhabitants of Lycia, now calling themselves Xanthians, are all strangers, excepting certain families;" on which account it may be supposed that the manners and customs they had introduced were undeserving of particular notice, as being foreign to the true Lycians.

We subjoin from this historian those passages which refer to the early history of the country.

"The Lycians came in ancient times from Crete under Sarpedon, who being expelled by his brother, settled in the Milyadian territory; such was then the name of the country now occupied by the Lycians; the Milyans were now called Solymians. For some time they were governed by Sarpedon, and were called at that time, as they are even now by some of their neighbours, Termilians. But Lycus, son of Pandion, having been driven from Athens by his brother Ægeus, came among the Termilians, and was received by Sarpedon; and in course of time it happened that the name of this stranger was adopted by the people, who afterwards were called Lycians: their laws are partly Cretan, partly Carian; one of their customs is entirely peculiar to themselves: that

the children take the name of their mothers, and not that of their fathers." (B. i. c. 173.)

The Lycians remained an independent nation until Cyrus turned his armies against them after the fall of Crœsus. "The Carians were reduced to servitude by Harpagus, the general of Cyrus, without displaying any instances of valour; but the Lycians, when Harpagus arrived in the plains of Xanthus, came forth against him, and fighting a few with many gave signal instances of valour; but, being defeated and driven into their city, they brought into the citadel their wives, their children, their goods, and slaves, and then setting fire to the fortress consumed them all. Having so done, they bound themselves by a tremendous oath, and going forth fought till all were slain. Those Lycians who now call themselves Xanthians are, with the exception of forty families, strangers, who have since settled in that place. Thus was Xanthus taken by Harpagus, and in nearly the same manner Caunus also, for the Caunians imitated in great measure the Lycians. (B. i. 171, 174, 176.)"

In the above account of the history of the Lycians there are no grounds for supposing that a language so distinct as that now found engraven

on a certain class of monuments, and so different from the language then spoken in Asia Minor, was that of those colonists who supplanted the Termilians or Solymians; but, on the contrary, it is to be inferred from the Iliad, that their language was Greek, similar to the other nations with whom, and against whom, they were joined in warfare. This is clearly proved by the parley between Glaucus and Diomed in front of the two armies. (B. vi. 150.) Their religion was the same also, as from Homer we learn that the Lycians worshipped Apollo. (Iliad, B. iv. 150.)

Herodotus is likewise silent as to the Lycians speaking a language peculiar to themselves; and as he was a native of the neighbouring province of Caria, and has shown himself to have been a deep inquirer into the origin and language of the people of every country he describes, it can hardly be supposed that he would have overlooked a fact so important in connexion with Lycian History, had such been the case.

His concurrence with Homer on this point tends materially to weigh against the opinion that there was a language distinct from the Greek and peculiar to Lycia prior to the Persian invasion of the country.

After relating the manner in which the entire population of Xanthus was destroyed, he mentions that the Lycians, who called themselves Xanthians in his day, were all strangers, with the exception of a few families who happened to be absent from the country during the invasion; but without specifying of what nation these strangers were. The word in the original Greek, viz., επηλοδες is, we believe, equally applicable to settlers of a foreign nation as to Greeks; and as the earliest monument inscribed in this language has been fixed by Mr. Sharpe, and generally received to be subsequent to the Persian invasion, we formed an opinion that the language was never spoken by the entire population of Lycia, which is somewhat borne out by the several bilingual inscriptions existing in the country; and that those inhabitants to whom the language belonged, were the very strangers whom Herodotus informs us settled there, after the original possessors of the country, the true Lycians, were destroyed; and that, in fact, these settlers were the conquerors themselves; and that the so called Lycian monuments and inscriptions are the relics of those people. This opinion becomes more convincing the more we inquire into the facts which have been already

gleaned from the inscriptions, even with the slight knowledge already attained of the language. From the form of worship, the names of individuals, and other words mentioned or alluded to in the inscription on the Xanthian Obelisk, the nation who constructed it appears to have been the Mede or Persian. This we shall further dwell upon, taking our proofs from Mr. Sharpe's elucidation of the language in the Appendix B. to Sir Charles Fellows's second volume.

Our opinion with respect to the Persian origin of the monuments and language now existing in Lycia, was first formed during our sojourn at Xanthus, and it daily became more convincing to us, as the several sculptured fragments now in the British Museum were brought to light from beneath the accumulated rubbish of ages. New facts were thus added to those previously known, showing the great influence and interest which the Persian conquerors must at one time have had in the country. Some of these fragments displayed subjects wholly connected with the conquest of the country, such as the besieging of the city; in others, the figures, horses and chariots are recognised to be Persians; and in one bas relief of great interest, a king or

satrap is represented seated under an umbrella, apparently to receive a deputation from the inhabitants. Our subsequent research through the country tended materially to strengthen this opinion, since it made us better acquainted with the district to which these monuments and inscriptions are confined, and especially showed, that if they belonged to the Termilians who were settled in the country before the arrival of the Cretan and Athenian colonies, that people did not continue, in the strongholds to which they retired, the custom of sculpturing inscriptions on their tombs and on the rocks, for in the territory of the Solymi, as we have shown in our narrative, no such evidences exist. These facts induced us to give publicity to our views in a letter written in the island of Rhodes at the conclusion of our tour, and published in the Athenæum.

If we further inquire into the history of the country subsequent to Herodotus, we find, that "the Lycians remained under the government of the Persians until its conquest by Alexander, for Thucydides makes no mention of their having taken a part in the Peloponessian war." (Sharpe p. 438, Cramer.)

The march of Alexander appears to have been directed to those countries in which the Persians were most numerous or possessed the greatest influence over the Greek portion of the inhabitants of Asia Minor; for he frequently appeals to the latter for aid and assistance in a national cause, viz., that of ridding the country of their common enemy the Persians. This most probably was a chief motive for inducing him to march into Lycia, although so full of difficulties.

Plutarch says the guide who was to lead Alexander to the frontiers of Lycia, was a native of Lycia, but, by *his mother's side, a Persian.* Pharnacus was another Lycian skilled in the barbarian language (Arrian, B. iv. c. 3). These are historical facts which tend to link at a certain period the Persians with the Lycians.

Mr. Walpole has in his Appendix collected some very important extracts, which show that the Carians also understood the Persian as well as their own tongue; natives of Caria were on several occasions chosen as interpreters between the Greek nation and the Persian Court. (See Walpole's Memoirs.) The same reason which we gave for the introduction of the Persian language into Lycia, founded partly upon his-

tory, will account for its use in Caria, viz., that the conquerors became the settlers there also, for Herodotus distinctly says that the Caunians imitated in a great measure the Xanthians in defending Caunus against the Persians, which was, therefore, like Xanthus, left in the hands of the conquerors, a depopulated city. Both the desolated localities it seems most natural would have been repeopled by the Persians themselves. Whether this conjecture be allowed or not, it is an important fact that Caunus is the only city out of Lycia in which the so called Lycian rock-tombs are found. There they are very numerous, and undoubtedly originated with the same people who introduced the language. And it is important to notice that Herodotus, when speaking of the inhabitants of Caunus, expresses his difficulty with respect to the origin of their language, and "thinks that the Carians have assimilated their language with the Caunians. (B. i. c. 172.)

The river Xanthus, it appears from some ancient authors, at one time bore the name of Sirbe. Dr. Cramer, page 249, quotes two authorities, Strabo and Stephanus Byzantinus. Sir C. Fellows gives an extract from Bochart's

Geography, stating that "Sirbe was a Persian word meaning sand-colour." (Fellows, p. 278.) Mr. Sharpe, when treating on the Lycian coins in the Appendix B. of Sir C. Fellows's second volume of travels, argues in favour of Sirbe being the most ancient name of the river, and of Xanthus being merely a Greek translation of it. From the évidence before adduced we venture to take the opposite view; and from the fact of Sirbe being a Persian word of the same meaning as Xanthus, we are disposed to think it furnishes a very important link in our chain of evidences in favour of believing that the valley of the Xanthus was inhabited by Persians after their conquest of the country, and that it was these settlers who adopted a word of their own language, which, like Xanthus, denoted the colour of the river, as the name the most applicable to so remarkable a stream. Subsequently, as the Greeks supplanted the Persian influence, and their language also, through intermarriage, the original name of the river again replaced that introduced by the Persians; but being retained through tradition, it may thus have reached Strabo, and the other geographers, as an ancient appellation of the stream. But as it is a name not mentioned

by Homer or Herodotus we have no ground for dating its application earlier than between the time of the latter author, and the days of Strabo; that is, during the period when the Persians retained possession of the country, after their conquest of it.

We shall now briefly notice the passages of Mr. Sharpe's appendix on the "Lycian language," wherein he speaks of those words and parts of the inscription on the Xanthian Obelisk, which he has been enabled to translate, and which he considers to be the earliest specimen of that language.

In page 433, Appendix B. he says, "As far as I can judge, the Lycian language appears to have more resemblance to Zend than the Persepolitan; *yet all three* are of the same family, which we may call Persian; and it is not improbable that this monument may have been one of the five altars of the Persian religion."

In page 434, "From the Greek inscription on the north-east side of the Obelisk, we are enabled to collect that it is an order addressed to the Lycians by some sovereign; the only person mentioned is the son of Arpagus, who is spoken of as a prince or governor, and to whom perhaps

a portion of the kingdom was given in charge by a preceding sovereign.

In page 435, "The line in Lycian which follows immediately after the Greek is to this effect, 'Transcript of the greatest decree of the King of Kings;' showing that the decrees on the upper part of the monument emanate from the king of Persia. The words 'king of kings' occur frequently on the north-east and north-west sides of the monument, and on the same sides we find frequently repeated the name of Aoura or Aouremez, the chief divinity of the Persian fire-worshippers."

In page 436, Mr. Sharpe gives a brief summary of the conclusions, drawn by him from an investigation of the inscriptions. This we transcribe, as presenting one of the best arguments in favour of the opinions we have advanced respecting the origin of the language. "The few words which I make out here and there, in these two sides of the monument, lead me to suppose that it contains a series of decrees relating to the settlement of the country after the conquest by the Persians, and to the manner in which the *people of the two nations and religions are to live together*. The Medes and Lycians are frequently

used in opposition to one another; and in one passage a distinction is drawn between the worshippers and the opponents of Ormuzd; but I have not made out whether they are enjoined to live peaceably together, or whether the worship of Ormuzd is to be enforced upon the conquered Lycians."

The above extracts, containing the best information yet attained of the language, seem throughout to furnish very strong and indisputable arguments in favour of the language in question being that of the Persian settlers, rather than of the Lycians, whom the conquerors found in prior possession of the soil.

There are yet other arguments resulting from another source of investigation connected with the Lycian monuments and inscriptions, viz., the Lycian coins. These are contained in the following remarks of Mr. Daniell, unfortunately the only observations on the subject which he had put to paper before his death. They were sent to us by Mr. Purdie, with the inscription-books, according to one of the last requests of our lamented friend. The original sheet bears the following date: "Adalia, June 24, 1842."

"Having ventured to state an opinion which

has become public, that the inscriptions found in such numbers on the monuments of Lycia (and as it would seem in no other country, at least of Asia Minor,) were not written in the language of the Lycian people, but of their conquerors, I shall now proceed to state on what grounds I came to that conclusion during my passage through the country in which those inscriptions were found. We have the remains of three distinct classes of ancient workmanship, which it is impossible to separate from each other with regard to their age and their origin: The tombs, to which Mr. Fellows has unhappily given the title of Elizabethan (those extremely simple imitations of wood-built cottages, with rectangular mullions, and raftered roofs), the coins usually designated as triquetras, and the inscriptions themselves. Finding the language inscribed on no other coins (with one or two remarkable and unaccountable exceptions) than on those with the triquetra, certainly on none earlier; finding it on no tombs of an earlier date than the raftered tombs in question, and on others of virtually the same character, though differing in form, such as the tomb of Payara, at Xanthus, and the great tomb at Antiphellus, we cannot

disconnect the language from the tombs and the coins. We feel that the people who spoke the language were the authors both of the architecture and the coinage; and these facts we fairly assume as data, because they are the data on which any one must argue who would prove the language to be Lycian; and it seems altogether beyond belief, that if this particular language had been the language of the country for many centuries, it should have been first employed as a language of inscription by persons who did not speak it, and who, we have historical authority for saying, were strangers to the country. Herodotus distinctly states, of one district at any rate, that the early inhabitants were all but annihilated by the Persian invasion; and that those inhabiting Lycia in his time, and calling themselves Xanthians, were, with the exception of certain families, foreigners. Now let us for a moment bring the question of coins to bear upon this portion of our inquiry. These coins apparently belong to a certain series of cities, many of which are determined by their resemblance to the Greek names, and all of which, as far as we have any knowledge of them, were situated along the coast of Lycia, or the bordering country of Peræa

or Caria, with one exception, that of Gagæ.* Tombs with inscriptions in the same language are found at all those places; and upon the whole there is sufficient foundation for the conclusion that the number of cities in which there are traces of the people speaking this language and building these tombs, is about the same as that of the cities coining the triquetra, viz., Cadyanda, Pinara, Tlos, Arsa, Xanthus, Patara, Telmessus, Araxa, Antiphellus, Pyrrha, Phellus, Candyba, Armootlee, probably Podalia; Cyanæ 1st, and the 3rd-found Cyanæ; Dembra Gorge (Trabala?), Myra, Sura, Limyra, Corydalla, Rhodiopolis, Dædala, and Caunus. This list, formed from a tolerably minute survey of the country, includes, I believe, all the places in which there are traces of the so-called Lycian language or tombs, and may probably serve in a material degree to throw light,—if not altogether explain the names found on the coins, since there can be little doubt of their being eventually shown to be *exactly so*. Either, then, these coins were in currency before the tombs were sculptured, or

* Mr. Sharpe has since altered the sound of a letter in the alphabet, which will not admit of the assigning these coins to Gagæ.

they were not. Is it likely that they were? Is it probable that the people who had the power to execute works of art, such as we find on even the earliest of these triquetras, grotesque though they be, would have omitted to employ the same talent and skill in the sculpture of the beautiful limestone, with which their country abounded, and which we find them elaborately working after a given period? I am sure an examination of these monuments in conjunction with the coins even more cursory than ours was, would be sufficient to lead to the conclusion that they both owe their origin to the same people, and to the same period, and that in the strict sense of the word period, beginning at the same time, and ending at the same time.

"Now there are in Lycia, at least four very remarkable Stelæ; two of which have been inscribed, and one of which has its inscription pretty nearly perfect, and covering its four sides; this is the obelisk at Xanthus. Two of these four sides contain, in the opinion of Mr. Sharpe, the most ancient relic of the language of which we are speaking, and one of these sides a bilingual edict of eleven lines,—the date of which is known by the mention of the name of Harpagus,

or his son, that date being between 530, and 500, B.C.; we thus arrive at the date of the earliest of these inscriptions, and consequently at the limit on the side of antiquity of the date of the earliest of the inscribed tombs. Leaving, then, the general tenor of the edict out of the question, we find that none of the monuments, characterized by these inscriptions, date, in the opinion of the best judge of the structure of the language, further back than the Persian conquest.

"This would of itself appear a strong presumption in favour of the Persian origin of the monuments and language. It seems unaccountable that the Lycians, who had hitherto left their dead without inscribed monuments, should be thus suddenly seized with a passion for a new style of architecture, and with a desire to record the names of the dead, and of their relatives. It is quite clear that the uninscribed tombs at Tlos, Armootlee, and in the pass of Dembra, are not of an earlier date than the inscribed ones at Pinara, Corydalla, Antiphellus and elsewhere; and that whatever may have been the date, however early, of the numberless plain rock-receptacles for the dead in the mountain over Pinara and in other places scattered over the country,

the architectural ones do not go farther back than the earliest arrow-headed inscriptions which have been copied.

"Now we have already a clue as to the beginning of the tombs. The earliest inscription in the language of the supposed sculptors of the tombs has a distinct date, as we have seen, subsequent to the Persian conquest; and it mentions the general to whom that conquest was intrusted by Cyrus, and who effected it. Let us now see whether a similar limit as to date cannot be elicited from the coins themselves, independently of all antecedent probability.

"It has been most happily and ingeniously suggested by a gentleman interesting himself with the late researches in this country, that the instrument to which the name of triquetra has been given, is in reality a grappling-iron, a hook—αγκυρος,—that the Persian general, finding himself governor of a district in which his language was as yet not spoken, and desiring to make his name known as the lord of the district, in all the cities which owed him allegiance, and in which his followers took up their abode, instead of engraving his name or his portrait, put a symbol upon his coins, which must immediately

remind all employing the coinage, and acquainted with the Greek language, that ΑΡΠΑΓΟΣ was the governor,

"This supposition will sufficiently account for the variety of forms which this instrument assumes in different medals: sometimes that of a single hook; sometimes of a double one; but generally treble; and in one or two instances quadruple. The variations show, that its being a hook was more characteristic of its object on the coin, than its being a three-legged instrument, as is commonly supposed, and as its modern name would tend to imply, while its being generally three-legged may be sufficiently accounted for by the probability that grappling irons were usually of that form; nor is it altogether impossible that there may be some connection between the history of this coinage and that of the Selgians, so universally distinguished (I believe) by its three human legs. However this may be, it is at all events clear that there is strong presumptive evidence in favour of the Persian origin of these coins, by far the most probable explanation of their characteristic symbol bringing them to precisely the same date and origin as the obelisk at Xanthus, which itself contains the earliest

specimens of cuneiform inscriptions in Lycia; as these coins contain the earliest specimens of the numismatic employment of that language."

Shortly before the death of Mr. Daniell, he communicated to us by letter the discovery of another curious fact tending to prove the connection of the triquetra coins of Lycia with the Persians. Amongst other coins purchased by him in that neighbourhood, were two or three darics (a gold coin, ascribed to Persia; hence their name, from the monarch supposed to have issued them). On these, he observed a counter-stamp, apparently intended to make them current in some other country than that for which they were first coined; and on a close examination he was no less pleased than surprised to find a symbol resembling that on the coinage of Lycia, viz. the so-called triquetra; in all probability stamped with the intention of making those coins current in that country, after their having been carried there by the Persians themselves, for the use of those of their nation who became settlers.

The generally received opinion that the language now called Lycian was that of the indigenous Lycian people, rests upon historical evi-

dence, which tends to show that a language differing from that of the Greeks was at one time spoken by the inhabitants of Lycia.

History informs us that prior to the arrival of the Cretan and Athenian colonists the country was occupied by a people called Solymians (Herodotus, B. i. c. 173) who spoke Phœnician. (Walpole, p. 532.)

Now Mr. Sharpe, in his letter to Mr. Fellows on the construction of the Language of the Lycian inscriptions (Appendix, B. p. 429) says, "I began with the impression that the language was derived from the Phœnician, but I was soon staggered in this opinion by the abundance of vowels in Lycian, of which there are ten, nearly *corresponding to the long and short vowels of the Persian and Indian languages.*"

Here there appears direct proof of the peculiar language on the Lycian monuments having no connection with that of the earliest inhabitants of the country. Whilst its close resemblance to one of the Persian languages, coupled with the date fixed of the earliest of the monuments upon which the Lycian characters are inscribed, afford strong presumptive evidence in favour of its Persian origin by Mr. Sharpe's own showing.

And here we shall leave the subject to the decision of learned philologists, in the hope that ere long sufficient data will be gleaned from the inscriptions themselves, to enable us to determine certainly the people with whom they originated, whether Lycians or Persians.

CHAPTER XI.

On the Natural History of Lycia.—Its Land and Fresh-water Animals.

It is not our intention in this and the following chapters on the natural history of Lycia, to give complete catalogues of its animals and plants, or descriptions of new species. Sooner or later we hope this will be done in a work purely scientific, and devoted specially to the illustration of the researches conducted under the auspices of Captain Graves, and in connection with the surveying operations of H.M. ship Beacon in the Ægean, and among its islands and shores. We purpose, however, at present to give a general sketch, exhibiting the more striking features of the zoology and botany of the country, as they came under our notice during our travels, and a connected view of the geological structure of the province. In doing so we shall be able to throw light on the causes of the physical features of this part of Asia Minor, and contribute our mite

towards illustrating the knowledge of natural history possessed by the ancient Greeks.

A residence of some duration is required before a naturalist can make acquaintance with the larger land-animals of any country; and the more fixed his habitation the greater will be his success in observing them. Our nomadic life was unfavourable to such observations, nor was the season of the year in which we visited Lycia, the best for that purpose. Among the larger quadrupeds, and the most remarkable, that attracted our notice, was the caik or caigi, the name by which the ibex * is known in Lycia. It is specifically identical with the ibex of Switzerland. The "wild goat" of Crete, whose horns are figured in Mr. Pashley's work, is the same species. A specimen was procured alive, and kept tame as a pet on board the Beacon. In Lycia the ibex frequents the summits of the highest mountains in summer. In the month of October 1841, during Mr. Hoskyn's tour, a herd of them was met with on the summits of the Massicytus, travelling in single file over the steep rocks, at an elevation of nine thousand feet. In the winter they are said to descend from the

* *Capra Ibex.*

heights. Their skins are valued for praying-rugs. The wild goats of Crete, mentioned by Aristotle, and of which he reports that they are said to seek the herb Dictamnus when wounded,* was doubtless this ibex. Its modern name appears to be only a corruption of the ancient Αἰζ. It ranges probably throughout the Taurus; but how far eastward is doubtful. The ibex of Thibet and the Himalaya is said to be a distinct species.†

Another large quadruped, not unfrequent in the Lycian mountains, is the leopard; a formidable enemy to the flocks. It is known by the Turkish name of caplan. Its skin is still more highly prized than that of the caik. The "sertlan" and "surinjek," from the descriptions of the inhabitants, appear, also, to be large cats. As to the "astlan," or lion, he certainly does not inhabit Lycia now, — if, indeed, he ever did.

Bears and wolves are frequent; and the fox is said to be common. They are all identical with the European species. Jackalls are abundant, and make known their presence by their detestable yelling as soon as the night sets in.

* Περι Ζωων, ix. 6.

† Blyth in Zoological Proceedings, 1841.

They are very daring and will carry away fowls, even from within your tent. When one of our horses was drowned at Phineka, the Urook dogs and jackalls soon discovered the carcass, and came in troops to feed upon it. The former were too fierce and strong for the latter, so that the jackalls were obliged to have recourse to stratagem in order to obtain a share. A part of their troop would raise their cry on the hill side, at some distance from the dead horse; thereupon the dogs would leave the carcass and make a fierce rush to drive away their rivals. The diversion thus created, enabled the main body of the jackalls to rush silently to the carrion, and carry off a share before their enemies had discovered the feint.

Deer are said to be numerous, but we did not see any. Wild boars are abundant; and everywhere in the oak woods the workings of their snouts are seen. They are hunted by the Turks for sport, and for food to furnish their dogs. Hares are not uncommon: the species is the common European hare (*Lepus timidus*). The porcupine is common, though not often seen. His quills, however, are frequently seen strewing the ground. The natives speak of a flat-backed quadruped called *koondoos*, which lives in rivers. This is probably

the beaver. The Mongoos is occasionally met with, and is known by the name of *kara-koulak*. Martens, squirrels, moles (probably the *Aspalax*), rats, mice, and bats, complete the list of indigenous mammals, with which the country-people are familiar, or the traveller likely to meet. In the Lycian landscape the introduced camel and buffalo play a far more important part than the aboriginal quadrupeds, and their strange and exotic aspect aid not a little in giving it its Eastern character.

The season, and the multiplicity of objects which engaged our attention, prevented our contributing to a knowledge of the ornithology of Lycia. In this department of zoology, however, we may expect to find the same species which frequent the other provinces of Asia Minor, and the shores and islands of Greece. The researches of Mr. Hugh Strickland, and more recently of Captain Drummond, render our neglect of less consequence. During the stay of the Beacon at Macri, one very remarkable bird was shot in the neighbouring marshes. This was the long-lost Smyrna kingfisher, *Halcyon Smyrnensis*, an ornithological desideratum to which our attention had been directed by Mr. Strickland. A hun-

dred years ago the British consul at Smyrna, Mr. Sherard, shot a specimen of this beautiful bird "in a river near Smyrna," and a drawing was published of it by Albin in his "Natural History of Birds." Linnæus named it *Alcedo Smyrnensis*. It is a large bird, measuring nearly a foot in length, and glories in a plumage glowing with mingled hues of bright green, intense blue, jet black, rich rufous brown, and pure white. Its bill and legs are bright vermilion. Several were seen, but one only shot. Its skin, prepared by Captain Graves, was sent to Mr. Strickland, who has described it fully in a paper published in the ninth volume of the "Annals of Natural History." It proved to be identical with the "Great Bengal Kingfisher," a bird generally distributed through India.

The pelican, the stork, and various species of heron, play a conspicuous part in the scenery of the marshes. They are also frequented by numerous snipes, ducks, and coots, the latter feeding on the *Melania*, a shellfish which abounds in the swamps near the sea. Their crops, when opened, were full of the shells of those mollusks. The red-legged partridge, and the quail, afford employment for Turkish sportsmen.

Among Lycian reptiles the tortoise * is the most conspicuous and abundant. The number of these animals straying about the plains, and browsing on the fresh herbage in spring, astonishes the traveller. In April they commence love-making. Before we were aware of the cause, we were often surprised, when wandering among ruins and waste places, at hearing a noise as if some invisible geologist was busily occupied close by trimming his specimens. A search in the direction of the noise discovered the hammer in the shape of a gentleman tortoise, who, not being gifted with vocal powers, endeavoured to express the warmth of his affection to his lady-love by rattling his shell against her side. The ardour of the tortoise is celebrated by Ælian. In ditches and stagnant waters, the fresh-water tortoise (*Emys caspia*) is equally plentiful. In fine weather long rows of them may be seen sunning themselves on the banks; whence, on being alarmed, they would waddle, and plunge with great rapidity into the water, apparently always following a leader, who made the first plunge from one end of the row. Of lizards, the chameleon lives among bushes in the low

* *Testudo græca* and *marginata*.

swampy maritime plains, but is not nearly so plentiful in Lycia as in the neighbourhood of Smyrna, and, unless carefully sought for, is not likely to be met with. The commonest lizard is the gecko, *Stellio vulgaris*, a harmless creature of singularly ugly and ferocious aspect. This animal is equally abundant in the uplands, to an elevation of three and four thousand feet, and in the hot plains by the sea. Numbers of them may be seen basking in the sun on the sloping surfaces of the rough grey rocks, themselves as rough and grey. We found a long-thonged whip a very good instrument for catching geckos and other lizards. A good aim, and sudden switch across their necks, brought them to the ground stunned, yet unharmed, and in excellent condition for specimens. Catching lizards with the hand or net too often detaches the tail, and lets the proprietor escape, unless he remain to gape with astonishment at the gymnastic performances of his severed and independent caudal termination. The gecko is doubtless the much-libelled *ασκαλαβωτης* of the ancients; of which each naturalist of old narrates, that, though harmless in his own country, it was venomous elsewhere. Next to the gecko, a small green lizard, allied to, or identical with,

the European *Lacerta muralis*, is the most common species. A little species of gecko (*Hemidactylus verruculatus*) is met with in houses, where it may be seen running up walls and along ceilings like a fly.

Under large stones, and especially at Xanthus under the great blocks of sculptured marble, blind-worms were not uncommon. The species appeared to be the *Anguis punctatissimus* of the "Voyage dans le Morée." A species much larger, and slenderer in proportion, and probably distinct, was found by us between Gagæ and Olympus. The curious *Pseudopus* also occurred. Everywhere under stones we found the *Amphisbæna*. It resembles a great pink earth-worm rather than a snake, and makes its way through the soil in similar fashion. When a stone under which an *Amphisbæna* lies, is lifted up, the reptile immediately makes for its hole, and, if seized, attempts to bite, but has no power to do any injury. Along with it a species of *Scincus* occurred, but was comparatively rare.

The common frog of Lycia is the eatable frog, *Rana esculenta*. It is very abundant in the marshes. A small and very beautiful mottled orange and green toad is found in the mountains.

We met with it at an elevation of six thousand feet. The delicate little tree frog, *Hyla viridis*, is frequently seen. The most curious of Lycian *Amphibia* is a salamander, which lives under stones in rocky waste and dry places, for the most part among the hills, at elevations between two and four thousand feet; but we once met with a specimen on a low hill in the valley of the Xanthus. It is a sluggish animal, about four inches in length, quite smooth, orange-brown, with brown and grey markings on the back; pearly grey sides, and livid orange belly. Its tail is long and tapering, and is orange speckled with black; as are also the legs. The young specimens were paler than those met with full-grown. It is probably an undescribed species.

Fresh-water fishes are rare. We were unsuccessful in our attempts to procure any from the Xanthus; though the natives assured us that in spring they were plentiful, and were fished for with rod and line, a leech being used as bait. An eel (*Anguilla acutirostris?*) abounds in the marshes and ditches of the plain between Xanthus and the sea. In the highlands we saw fish in some of the small streams. The Gule Hissar lake on the Cibyratic plain abounds in barbel

(*Barbus vulgaris*) of large size, and in a species of *Leuciscus*.

Insignificant as they may seem, the shells of land and fresh-water mollusks, if collected diligently by the traveller, and their localities correctly noticed, which may very easily and completely be done whilst he is on his journey, are more likely to afford a clear notion of the geographical relations of its zoology than the few specimens which time will permit him to prepare, or chance throw in his way, of animals of higher grade. Turning over a few stones, examining the crevices in the bark of trees, the holes and corners of rocks by the wayside, and the bottoms of pools and streams, may often supply him with numerous and valuable specimens; and if he takes due notes of locality, elevation, and nature of soil, he may bring home in a very small compass a treasure of valuable data for the zoologist who is interested in the distribution of animal life. We neglected no opportunity of increasing our collection of the land and fresh-water mollusca, and in all obtained between sixty and seventy species; a much smaller number than might have been expected. But, as we shall have again to observe when we come to write of

plants, the west, and probably the greater part of Asia Minor, is but the tail-end of a great natural-history province, the richest sections of which may be regarded as Greece, and the south of Italy. Two-thirds of the land and fresh-water shells of Lycia are species found also in Greece and Italy, and nearly one-third identical with British forms.

Land shells are very scarce,—much scarcer than in any other part of the shores of the Ægean. They are not only few in species, but also few as to individuals; which is remarkable, considering the abundance of limestone, and that the scaglia is in more western countries by no means unfavourable to their presence. In maritime Lycia the species usually found under loose blocks of limestone are a large and handsome *Clausilia*,* *Helix carthusiana*, *lenticula*, *algira*, *cellaria*, and two or three other species. A large snail, allied to *Helix spiriplana* of Olivier, and named *Helix Codringtoni* by Mr. Grey, occasionally occurs in such situations; as also does the common snail of England, *Helix aspersa*, usually more brilliantly banded, however, than it is with us. In similar situations more inland, as among the wooded

* *Clausilia Forbesiana*, Pfeiffer, a new species.

hills below Cadyanda, and on the flanks of Massicytus, we find, in addition to the species named, one or two other species of *Clausilia* and *Bulimus*, *Pupa doliolum*, and an undescribed *Helix*. Very local are a *Helix* allied to *obvoluta*, observed only on the hills between Myra and Phineka, and some large species of *Pupa*, found on the borders of Pisidia. *Bulimus decollatus*, so common in the south of Europe, is here a very local species. None of these shells were found on the hills of serpentine: here, as everywhere else, that rock seems to repel the shell-bearing mollusca; but a species of slug was not uncommon. At Termessus we found a large green *Bulimus*, new, and since described by Dr. Pfeiffer as *B. Spratti*.

In the tertiary plains of the valley of the Xanthus, and on the plain of Phineka, we find *Helix ericetorum* and *pyramidalis*; also *Bulimus fusciolatus* in great abundance, and varying much in its colouring, being sometimes pure white, sometimes regularly rayed, and occasionally speckled like a partridge, and *Bulimus pupa*. *Achatina acicula* is rare. On the sandy downs near the sea, as at Patara, and on the coast of Caria, we find several familiar European species, as *Helix vermiculata*, *H. variabilis*, *H. pizana*, and *Bulimus*

acutus. *Helix striata* and *H. aperta* are very local On the travertine plains of Pamphylia, *Helix aspersa, vermiculata, cincta, lenticula, ericetorum, pyramidalis*, another species, probably new, and a remarkable *Pupa*,* are abundant. On the walls of Adalia we met with a *Clausilia*, which had not occurred elsewhere in Lycia. *Succinea amphibia* was found at Fornas in the valley of the Xanthus.

We expected the elevated plains of the yailahs, and the higher peaks of Taurus, would have yielded a plentiful harvest of rare species, but they did not. The flat plains of the yailah basins presented only one Helix in abundance, and that was the omnipresent *ericetorum*. Our little English *Helix crystallina* occurred under stones on the plain of Almalee, as also two species of limax. Not a single *Clausilia* or *Bulimus* occurred high up; and a brace of *Pupæ*, probably new, with a doubtful *Helix*, were all our reward for many an hour's toil, tumbling over loose blocks in the higher regions of Taurus. Most alpine ranges yield a rich harvest in these genera; and even a miniature peak among the Cyclades would make a better show in its snail population.

About nineteen species of fresh-water shells

* *Bulimus Lœvii* of Philippi.

occurred. Among these the pulmonifera were all European forms, and mostly from the mountains. *Lymneus fossarius* was frequent in fountains on the sides of the mountains; and *L. stagnalis* and *palustris* occurred in the alpine lakes. *L. pereger* and *Ancylus fluviatilis* were frequent in streams among the yailahs. Two species of *Planorbis* occurred; the one identical with, the other allied to, *marginatus*. The former was found in the plain of Xanthus, the latter in the yailah fountains.

Of three *Paludinæ*, one, allied to *similis*, was found in the Arycandus, near Limyra; a second small species, allied to, if not identical with *P. Dupotetiana*, was common in the waters of both high and low country; and a third, undescribed, resembling *impura*, but having a remarkable reflexed and expanded lip, was found only in Lake Caralitis, where it was associated with a species of *Valvata*. Two species of *Neritina* occurred, both in the streams of the lowlands; where they where associated with one, if not two, species of *Melanopsis;* and at Macri with myriads of a *Melania*, the most Eastern in aspect of all the Lycian testacea.

Of fresh-water bivalves, two kinds of *Cyclas*

occurred in the mountain lakes; and a small *Pisidium* (*P. australe*) in fountains near the sea-coast. We did not see any traces of species of *Unio* or *Anodon*, nor could we hear of any, though several of the lakes of the upland are just such localities as usually contain them elsewhere.

In the fountains on the yailahs where we found the little *Paludina*, a *Planaria* abounds, identical with our common British *Planaria fusca*; and in the marshes and lakes, such as Caralitis, the medicinal leech is plentiful. It is equally abundant in the marshes of the low country. In those near Xanthus the leeches are gathered all the year round; but in the highlands only in summer. To collect them, people go into the water, wading about with their legs and thighs bare, so that the leeches may stick to their skin. They then scrape them off, and put them into a bag. The leech-merchants carry them away in linen bags, which they soak in every stream or pool they come to. Each carries many of these bags suspended in a basket, and kept apart by twigs. Every day such of the leeches as may have died are separated from the living and thrown away. Smyrna is their usual destination, whence they are forwarded to the ports of France

and Italy. The leeches are farmed by the Agas, but there is a profitable contraband trade driven. They are sold by the gatherers for about one hundred and twenty piastres the oke; which, even though a great many die, gives a large profit to the merchant. Sometimes, however, all die. There is a leech-bazaar held at Caisabar.

The insects collected during our tour have been deposited in the British Museum, where they have been examined and named by our friend Mr. Adam White, who observes, that the Lycian insects belong to the same entomological province with Greece and the Archipelago,—a part of the great Mediterranean province. As we might expect, there are among them many forms of an alpine or sub-alpine character, by which the general assemblage is distinguished from that met with in the islands of the Ægean. Among these is a very distinct and dark-coloured lady-bird, nearly allied to, and perhaps a variety of *Coccinella quinque-notata* of Kirby, a species which ranges from Greenland to Abyssinia, becoming alpine as we proceed southwards. In Lycia it is found only on the highest summits of the Taurus and Massicytus, and was taken by Mr. Hoskyn and Mr. Forbes at an elevation of nine thousand

feet in the latter chain. Curiously enough, in the same locality, and under almost the highest stone, we found an earth-worm.

Among the more remarkable insects which attracted our attention were the following :— Of beetles, a splendid species of *Procerus*, of large size and brilliant colour; its elytra glowing with the most vivid violet and deep blue. It is allied to, and perhaps identical with, *Procerus Tauricus*, or *Duponchellii*. A duller and more English-looking member of the family of *Carabidæ* occurred at Xanthus, in the shape of *Procrusticus payiafa*, a new form described by Mr. A. White, and very interesting to the entomologist on account of its linking the genera *Carabus* and *Procrustes*. A little *Brachinus*, which, when caught, rivalled our *Brachinus crepitans* in its power of producing explosions, abounded in spring among the ruins at Xanthus.

All along the sandy shores near Patara, and in the bay of Phineka, myriads of beautifully coloured *Cincindelæ* were seen on sunny days. In the yailahs, the elevated plains yielded insects of less gorgeous hues than those inhabiting the low country. There we found the *Geotrupes hemisphericus* and *lævigatus* abundant. In the

low country the most plentiful coprophagous beetles are *Onthophagi*. An *Onitis*, allied to *O. menalcas*, a Russian species, occurred. Among the weevils we met with species of *Cleonus*, *Lixus*, and *Sitona*; but they are scarce insects in Asia Minor as compared with the members of some other tribes, the Longicorn beetles for example, of which there are numerous and beautiful forms, as might indeed be expected in a country so belted with forests. The great *Hamatigeros heros* was the largest we observed. The variety taken was that named *miles*, and known as an inhabitant of Corfu. Numerous species of *Lepturidæ*, *Purpuriceni* and *Saperdæ*, of the divisions *Agapathea* and *Oberia*, swarmed towards the end of spring; and during the summer the entomologists who would brave the risks of fever might, doubtless, reap a rich harvest in the maritime parts of Lycia. At the same season numerous *Hopliadæ* abounded; species of *Anomala*, *Anisoplia*, and other genera. Among the more conspicuous coleoptera was a large *Buprestis*, of the genus *Capnodes*. Very abundant in autumn, among the groves of great reeds which border the marshes, is a large green mantis, of the genus *Empusa* (*E. purpurata*). Its colour is so like that of the

leaves of the reeds which it frequents, that, until it takes flight, we might pass it unperceived. In spring the fantastic and skeleton-like larva of this insect was common in dry places, and none but an entomologist would recognize the young as allied to the adult. The former, indeed, has been described as a separate genus by Risso, under the name of *Phantasma meridionalis*. Butterflies abounded in spring, mostly high-flying and swallow-tailed species. *Scolias* and *Bembex* were the most attractive forms of *Hymenoptera;* and *Pandarus*, *Tentyria* and *Cephalostenus*, of *Heteromera*. The *Cicada* was abundant. A large collection of insects was made in Lycia by Herr Löew of Posen, who specially attended to this branch of natural history. He had found many undescribed forms.

By the sides of streams, especially in the serpentine districts, land crabs-are common (*Thelphusa fluviatilis*). Their preference of the serpentine before the limestone country depends on the constant retention of water in the former, the streams never ceasing to run throughout the heats of summer. To this cause—the presence of constant moisture, and consequently of a fresh vegetation—is, doubtless, also to be attributed

the number of slugs (*Limax*) on the same rock, although comparatively rare elsewhere.

Many curious myriapoda were observed, as well as scorpions. Some of these were new species, and have been fully described by our distinguished friend, Mr. Newport. (See his papers in the Transactions of the Linnæan Society.) Spiders are as abundant and in as great variety in Asia Minor as in Greece. One of the largest, a species of *Mygale*, lives in a tube of earth, closed at its aperture by an earthy door, which opens and shuts for the entrance and exit of the animal, being suspended by a kind of hinge, constructed out of the silky web. Some of the Lycian spiders are painted with the most vivid colours.

CHAPTER XII.

On the Zoology of the Coasts and Seas of Lycia.

BORDERING the sea which furnished Aristotle with the subjects of so many of his admirable researches, the coast of Lycia is of no slight interest to the student of marine zoology. In the writings of the great founder of natural history as a science, there are allusions to its shores, proving that he drew from thence part of his information. It is, consequently, classic ground to the naturalist as well as to the scholar. Little, however, has been done since the days of the Stagyrite towards the exploration of the scene of his researches. The stray notes of Sibthorp, and the great work on the Natural History of the Morea, the result of the labours of the French Commission, are the chief modern documents on which reliance can be placed. The information they afford respecting the

marine animals of the Ægean is, however, very scanty. This is especially the case so far as the invertebrata are concerned: and much yet requires to be done to clear up the allusions in Greek authors to the fishes of their country.

The ancient, like the modern, Greeks seem to have been a fish-eating people, and great hunters of cuttle-fishes. Hence the abundance and minuteness of information respecting the fishes and cephalapods of his native shores, contained in the zoological writings of Aristotle. The religion of the present inhabitants of Greece favours the preservation of their ancient habits; and the number of fasts enjoined by their church, compels them to seek in the sea for unproscribed food. The Turks, on the other hand, are essentially terrestrial in their habits, and do not naturally venture on the waters, or feed on the creatures that live beneath them. Except where there are resident Greeks, we find no boats on the coast of Lycia, and no fisheries. Hence a traveller under ordinary circumstances would scarcely be able to make acquaintance with the submarine population of the neighbouring portion of the Ægean. The facilities, however, afforded by the Beacon and its surveying operations,

enabled us to procure abundant information on this branch of the natural history of Lycia. Such of it as is of general or classic interest we have thrown into this chapter.

The fishes especially claim attention. They are as numerous on the Lycian shore as elsewhere in the Eastern Mediterranean; but very few attain any considerable size. In the sheltered bays and gulphs numerous species of *Sparoideæ*, a tribe very characteristic of the Mediterranean region, resort; forms of *Sargus*, *Pagrus*, *Chrysophris*, *Cantharus*, *Sparus*, *Dentex*, *Boops*, and *Oblada*. They may be seen swimming in shoals around the vessels at anchor; their broad silvery sides glancing in the water, in some striped with regular bands of gold, in others marked with one or two dusky clouds, or tinged with brilliant ultramarine and dark purple. They are abundant in water from five to seven fathoms deep where the bottom is muddy and weedy. Many of them are fair eating, but, as may be said of the fishes of the Mediterranean in general, not to be compared with the common fishes of the British seas, though handsomer than most of them.

One of these fishes is the σαλπη of the ancients.

Aristotle says of it, that it lives on sea-weed and filth, and that it also eats the *prasium*.* There has been much discussion among commentators as to what the *prasium*, which afforded food to the Salpa, was, some regarding it as a plant of the onion tribe—a true leek—among whom is Rondeletius—and others (as Gesner), suggesting that it was a sea-weed resembling the leek. The latter came nearest the truth. There can be scarcely a question as to the πρασιον, mentioned in the passage of the History of Animals referred to, being a sea-weed—and that sea-weed the curious and beautiful *Caulerpa prolifera*, a fucus whose oval and regularly shaped fronds are of the most vivid green, and bear so little resemblance to ordinary sea-weed, that we can easily understand the distinction drawn by Aristotle between it and the fucus usually so called. The *Caulerpa* grows in great profusion on the muddy grounds frequented by the Salpa. When the dredge came up full of this weed, it seemed as if it had gathered a mass of shelled pea-pods.

To the same tribe of fishes with the Salpa, probably belonged the Orphus (ορφος), said by

* η δε σαλπη τη χοπρω και φυχίοις. βόσχεται δὲ και τὸ πρασιον.—Περι Ζωων. (viii. 4.)

Ælian to inhabit the Gulph of Myra, where the priests of that place were accustomed to feed it with the flesh of sacrificed animals, and to draw omens of good or bad import, according as it snatched at or rejected the proffered food. Stephanus Byzantinus, and other old geographers, mention a place called Sura, between Myra and Phellus, where divination by fish was practised. In the narrative of our journey we have described the ruins at Sura, which ancient site we found not far from Myra. This, no doubt, was the locality to which Ælian alluded when mentioning the Orphus. It is possible, however, that the Orphus instead of being one of the Sparoidal fishes, was the *Scorpæna porcus*, an ugly, but brightly-coloured, large-headed, spiny fish, common near the shores everywhere in the Ægean; since, in a verse cited by Athenæus, it is spoken of as being prickly on all sides.

Another fish frequently mentioned by ancient writers is the Scarus. It was supposed to ruminate its food, — a fancy to which the peculiar aspect of its teeth may have given rise. This was, doubtless, the *Scarus cretius* of modern ichthyologists, a fish abundant on the Lycian shores; and still called by its ancient name. It is

remarkable for the variations of colour it presents at different seasons; at one time being of the most vivid crimson, at another of a dull bluish grey, and sometimes piebald of the two colours. Equally, and even more vivid in colour, are the various Wrasses, of which many gorgeous sorts are common among the rocks close to the shore. The *Julis mediterranea*, exhibiting the most intense hues of blue, green, crimson, yellow and black, arranged in well defined patterns, is the brightest of these painted beauties, and, indeed, exceeds all fishes of the Mediterranean for splendour of colour. Some of the species of *Sphyræna* glow with the brightest vermilion. They usually replace the Wrasses, being found in deeper water.

The Greeks are as fond of the fry as of the adult fish, and to secure it use nets with very small meshes. By this means, they catch also great numbers of the Atherine (*Atherina presbyter*, and allied species), still known as αθερινη. Immense flocks of this little fish may be seen in fine days skipping in long regiments on the surface of the water, endeavouring to escape from the needle-like gar-pike. Aristotle enumerates the Atherine among gregarious fishes. At such times,

too, great numbers of the grey mullet may be met with, swimming with their heads out of the water. The grey mullet is now called κεφαλος, and is, probably, the fish of the same name mentioned by Aristotle. When in the eighth book he draws a distinction between the κεφαλος and κεστρευς, (which was assuredly the grey mullet also,) on account of the good effect of rain and fresh-water on the latter, and the injuries they cause to the former, it is possible he applied the term κεφαλος, in the passage in question, to some other large-headed fish. His statement, that the mullet does not eat flesh, reminds us of the rare occurrence of one having been taken by bait when the Beacon lay in the bay of Macri.

There is a great mullet fishery carried on in Caria, close to the site of the city of Caunus, the capital of Peraea. This fishery probably existed in ancient times as well as in modern. Aristotle distinguished two kinds of the κεφαλος, the χελων, and the περαιας. Could the latter name have been connected with this locality, now famous for its mullets throughout the Ægean? The "fresh-water χαλχις, which swims in troops, and is caught in nets," was most likely also one of the varieties of grey mullet,—*Mugil*

auratus, perhaps, conspicuous for the bright golden spots about its head. The "sea χαλχις" was probably, as the old commentators have suggested, the Sardine.

The red mullet, *Mullus barbatus*, is abundant everywhere on the coast of Asia Minor, and is by far the most delicious of all the fishes of the Ægean. It is caught in great numbers in the sheltered bays. It was the τριγλη of the ancients. In sandy creeks the Uranoscopus is frequent. This strange and ugly fish, whose eyes and mouth are alike turned heavenwards, buries itself in the sand, all but the flat surface of its head. It thus lies in wait for its prey, which it snatches when unguardedly passing over and by it. When sailing over the sandy beds of the little bays indenting the coast, we could see, through the clear water at a depth of four or five feet, the bright eyes of the Uranoscopus, gleaming in the sand like gems, the body of the creature being invisible. Species of sole and other flat fish are found in similar situations, but none of size and flavour to compare with our English kinds. The Torpedo, of which the dark claret-red kind (*Torpedo narke*) is most frequent, also occurs in sandy bays.

In rocky nooks, besides the beautiful Wrasses already mentioned, numbers of Blennies and Gobies abound; some of them brilliantly coloured. The ἐχενηις of the Greeks, described by Aristotle as a little rock fish, with fins which might be mistaken for feet, used in philters, was probably a goby or a blenny, and not regarded as anything very wonderful, until such pseudo-naturalists as Pliny, and Ovid, and Oppian, made up for their ignorance of the creature by inventing strange fables about its power of arresting vessels. The curious sucking-fish now called *Echeneis* (the Remora), does not appear to have been known to the ancients. The fish which we found to live deepest of any in the Ægean was a little goby, frequently taken in the dredge at a depth of forty and fifty fathoms. Under great masses of rock close to shore, lives the Muræna, the sea-eel, so famous among ancient epicures. Its long slimy body is beautifully clouded with purplish-brown and salmon colour. The modern Greeks call it *σμυραινα*, and esteem it highly. It is cooked by them without having been skinned, and is excellent eating, though not equal to the famous fresh-water eels of the Thames, that essential element at white-bait

dinners, — feasts which would have made the ichthyophagous epicures of old die of envy.

During the researches of the Beacon on the Lycian coast, and among the islands of the Ægean, above seventy species of marine fish were observed, examined, and drawn, being more than twice the number recorded from the Grecian seas, in the great French work on the Morea. It is much to be regretted that as yet no competent ichthyologist has devoted his attention to the composition in monographic form of a history of the Mediterranean fishes. A first step to it would be the preparation of a collated catalogue of the described species with synonyma and references to the best figures. The exposition of every department of Mediterranean zoology is of the deepest interest, as well on account of its connection with the researches of the earliest naturalists as the light it must throw on the origin and development of the fauna of a great inland sea. If one section more than another has a claim for early attention it is that of ichthyology, since the working out of the natural history of the Mediterranean fishes would clear up much in the writings of the classic authors.

The traveller who, when treading the shores

of the coasts and islands of the Ægean, observes, as he can scarcely fail to do, the innumerable remains of the hard parts of cuttle-fishes piled literally in heaps along the sands,—or, when watching the Greek fishermen draw their nets, marks the number of these creatures mixed up with the abundance of true fishes taken and equally prized as articles of food by the captors, can at once understand why the naturalists of ancient Greece should have treated so fully of the history of the Cephalopoda, and its poets have made allusions to them as familiar objects. In an English drama such allusions would be out of place and misunderstood. To a Greek audience the mention of a cuttle-fish was as the mention of a herring among ourselves. The mob above the diazoma would appreciate the former, as the gods in our galleries would recognize the latter, as part and parcel of their household furniture. One of the most striking spectacles at night on the shores of the Ægean is to see the numerous torches glancing along the shores, and reflected by the still and clear sea, borne by poor fishermen paddling as silently as possible over the rocky shallows in search of the cuttle-fish, which when seen lying beneath the waters in wait for

his prey, they dexterously spear, ere the creature has time to dart with the rapidity of an arrow from the weapon about to transfix his soft but firm body. As in ancient times these mollusks constitute now a valuable part of the food of the poor, by whom they are chiefly used. The imprecation of the chorus, who calling down upon their victim the extremity of ill-fortune, desired that he might be reduced to a single cuttle-fish, and that a dog might come and snatch this last poor morsel from him,* would be as well appreciated in a modern Greek coffee-house, where curses deep and lengthy are now liberally bestowed by enraged gamblers on their successful opponents, as among the original admirers of Aristophanes. The Romans, if we may judge from the culinary receipts of Apicius, regarded a cooked cuttle-fish with more respect. We can ourselves bear testimony to its excellence. When well beaten, to render the flesh tender, before being dressed, and then cut up into morsels and served in a savoury brown stew, it makes a dish by no means to be despised, excellent in both substance and flavour. A modern Lycian dinner in which stewed cuttle-fish formed the

* In the Acharnes of Aristophanes.

first, and roast porcupine the second course, would scarcely fail to be relished by an unprejudiced epicure in search of novelty.

Granting, however, all the facilities of observing cuttle-fishes which the Ægean preeminently affords, the account of the habits and structure of these animals in the writings of Aristotle must ever remain among the most admirable natural-history essays ever written. If we bring together all that he records of these creatures in the several books of the History of Animals, we cannot fail to appreciate the position of the Stagyrite as the greatest of naturalists, past and present, for none among them all ever combined such extraordinary powers of observing equally the structure of the individual and the habits of the species, with the highest capacity for generalization. Each fact narrated by Aristotle seems always to be told with reference to some law, floating, as it were before his mind's eye, and to be fixed through the determination of the instance. Everything, too, is told in perfect good faith; hearsay narrations are related as such, and carefully distinguished from personal observations, a feature which places the natural-history writings of Aristotle on a par with the

highest productions of modern science. This cannot be said of any other ancient author who has treated of similar subjects. The philosophical spirit which pervades the History of Animals distinguishes it from, and elevates it above, the great majority of the natural-history writings of the moderns, and renders the study of that great work a sound course of reading in the education of the student of natural history. Or rather, such should be; for unfortunately the acquaintance of too many modern naturalists with the writings of the Stagyrite is confined to the bare knowledge of the existence of his memorable History.

The term *mollusca* (μαλαχια), now employed by naturalists to designate one of the five great types and primary divisions of the animal kingdom, was applied by Aristotle to the cuttle-fishes only. By the absence of (red) blood he distinguished them from true fishes; and by the presence of an internal skeleton, more or less developed from testaceous mollusks, whilst he recognized a character peculiar to themselves in the position of the head, "between the feet and the body." Under five genera he classed the several species of Cephalopoda known to him, nine in number.

Judging from those now inhabiting the Eastern Mediterranean, the following appear to have been the species which came under his notice.

1st.—*Sepia officinalis* (σηπια). This cuttle-fish (the rudimentary shell of which is popularly known as cuttle-fish bone), is extremely abundant in the Ægean, where it lives near shore. It deposits its eggs usually at a depth of five or six fathoms, fastening them by a curious bandlike pedicle to sea-weeds and sponges. Aristotle described it as the cunningest of mollusks, and gives a good account of its habit of ejecting its ink.

2nd.—The Calamary (τευθος), of which Aristotle describes two kinds; the greater Calamary and (3rd) the lesser. These have been referred by Professor Owen in his admirable essay on the anatomy of the Cephalopoda,* to the *Loligo vulgaris* and *Loligo media* of modern naturalists. The habits of the species of *Loligo* were well known to the ancients. Pliny (Book ix. 9,) describes the Calamaries as darting through the water like the *pectunculi* with the swiftness of an arrow. Those who have observed the motions of the *Pecten*, the shell-fish doubtless to which he

* Todd's Cyclopædia of Anatomy and Physiology, vol. i. p. 561.

alludes, and not the *Pectunculus* of the moderns, will appreciate the excellence of the comparison.

Of his genus πολυπους, which is equivalent to the genus *Octopus* and its subdivision *Eledone* in modern systems, Aristotle distinguishes six species, four of them unprovided with shells, and two living in shells. He remarks that the polypi are the only cuttle-fish formed for walking, which in consequence of the relative proportions of their body and arms they can easily do. Any person who ever dredged one of these creatures, knows the rapidity with which it can make its way by means of its long arms, even when out of its native element. Aristotle states it comes out of the water and walks in stony places. In the sudden falls, lasting not very long, of the sea level, which occur from various causes in the bays of the countries in and round the Ægean, these creatures may be met with walking on the exposed shore, and so have led to this notion; but it is doubtful whether they ever wander of their own choice above the usual water-mark. Ælian, however, who seems to have decorated most of the observations he thought worthy of record, tells us that the Octopus some-

times ascends trees! Aristotle describes the polypus as tenacious of life, but killed if its neck be squeezed. (Book ix. c. 17.) This remark probably refers to the existence of a practice by which the Greek fishermen of our own times destroy the Octopus and other cuttle-fishes. They turn back the arms over the head, and seizing the latter with their teeth, compress it in the region of the brain. Thus the creature is instantaneously killed. The remarkable changes of colour presented by the polypus were noticed by the ancients, and the truth of the statement of Aristotle, that such change is suddenly produced by fear, may be easily verified by observing one of these creatures when suddenly taken out of the water.

The four species of the polypus noticed in the History of Animals appear to be the following (Book iv. c. 1.):

1st.—The *Octopus vulgaris*. This is the large kind, "seen most frequently near the surface of the water."

2nd.—The "little spotted polype, which is not eaten." Unless this be the young of the first, there is no common Ægean species to compare with it.

3rd.—The Eledone, described as having only one row of suckers upon very long arms. It is referred by Professor Owen to the *Eledone cirrhosa* of Leach. The *Eledone macropodia*, a Greek species, is probably the animal referred to by Aristotle.

4th.—The "bolitane or ozolis," an Octopus, distinguished by its musky smell. This has been referred to the *Eledone moschata* of authors; but Aristotle distinctly affirms that only one of his kinds of polypus (the third), had the suckers on the arms arranged in a single row. The *Octopus vulgaris* as well as the *Eledone moschata* gives out, at times, a musky odour, and it is possible that such odoriferous specimens were regarded as examples of a distinct species.

Among the cuttle-fishes without shells no mention is made of the *Sepiola*, an animal sufficiently frequent in the Ægean to render it improbable that it escaped the notice of Aristotle. It is by no means clear that his little calamary was a true *Loligo*; and when (in the fourth book) he states that the fins of the little τευθις differed from those of the great species, (clearly the *Loligo*) insomuch as they did not surround the body, such a character will not apply to any true calamary, but

agrees well with the form of the *Sepiola*. Moreover, in the Aristotelian sense of species, a distinction would scarcely have been drawn between two forms of calamary, the species of which are very difficult to distinguish, so strong as that drawn in the history of animals between the greater and lesser teuthis.

The Octopus, the Eledone, the Sepia, the Sepiola, and the Loligo, all occur on the coasts of Asia Minor.

The Argonaut, which is one of the two kinds of μαλαχια with shells, is either very rare or does not range to that coast. It is well known, however, in the bays of the mainland of Greece. In describing it Aristotle for once appears to have given way to popular report, and not made use of his own observations. His second kind of polypus inhabiting a shell, "οιον κοχλίας," and attached to it like the animal of an ordinary univalve, has been regarded as the *Nautilus pompilius*. But that remarkable mollusk does not live in the Mediterranean, and considering the extreme rarity of the opportunities, even now, of observing it alive in its native sea,—the Indian Ocean,—we can scarcely suppose that it could have come under Aristotle's

notice. The animal to which he alludes was far more probably the *Carinaria mediterranea*, a pteropodous mollusk, having a shell closely resembling that of an Argonaut. It lives in the Ægean, and, as it is a swimmer, might easily be confounded generically with the latter. It belongs to the same order with the *Firola* or *Pterotrachea*, a curious creature, two or three inches long or more, resembling the fish called *Hippocampus*, or sea-horse, in shape, but of soft translucent jelly-like substance. Yet though so tender and fragile these mollusks are among the most ferocious of marine animals. When cruizing off the Lycian coast during the warm weather at the close of autumn we used to collect them in a tow-net, and then, placing them in glass jars full of sea-water, watch their habits. Delicate and beautiful as they seemed, the chief object of each seemed to be the destruction of his companions. The only hard parts in their bodies are a pair of horny jaws. With these, a *Firola* would seize some individual of the same species, not so strong as itself, and mercilessly tear its writhing prey, and devour it. It is a popular notion that no animals become cannibals from choice except man. The believers

in that vain fancy never saw *Firolæ* in their native element.

In sunny and calm spring weather the Lycian sea, at some distance from shore, seems as if filled with glancing needles of glass. A similar appearance may be observed in fine days in winter, but is due to a different cause. In the former case the appearance is produced by the presence of numerous mollusks of the order *Pteropoda*, and belonging to the genus *Criseis*, creatures bearing slender, transparent, pointed needle-shaped shells. From the wider ends of these they spread out their organs of motion, resembling the wings of butterflies, by means of which they dance up and down and move in all directions in the water, even as insects do in the air. The glassy needles of the winter sea are long threads of silicious substance formed of animalculæ jointed end to end. When kept some time the joints separate and move about independently.

The testaceous mollusks of the shores of Lycia are numerous, but more remarkable for variety than for their dimensions. On the rocks near the water's edge, several species of Limpet, especially *Patella scutellata*, and *Patella Bonnardi*, are common. Also the *Haliotis* and the *Fis-*

surella. Under stones near the water-mark *Chiton siculus* is abundant. More rarely we find *Chiton fascicularis* and *cajetanus.* The *Littorina petraea* is found at the very edge of the water, not differing from specimens gathered on the west coast of Britain. Species of *Vermetus* indicate the zoological character of the province. Also numerous forms of *Trochus,* of which one, *Trochus lyciacus,* has not been observed elsewhere. The animals of all the species of this genus may be as easily distinguished from each other by their colours as by their shells. The *Murex trunculus, Pollia maculosa, Columbella rustica, Fasciolaria tarentina, Fusus lignarius* and *Conus mediterraneus,* all shells of handsome aspect, and sub-tropical forms, are abundant in similar situations. Under the large stones in many of the little creeks we found one of the larger European forms of cowrie, the *Cypraea spurca.* When first seen it presents the aspect of a gorgeous slug, bristly with ramified processes. The moment it is touched all its ornamental armament vanishes; and instead of a soft slimy mollusk, we find in our grasp a hard and polished shell. This change depends on the organization of the animal. The smooth shells of the cowrie are,

when the creature is alive and active, incased in its expanded mantle, which bears all the bristly ornaments described, no doubt for the purpose of deceiving and alarming its many enemies. This mantle, when the creature is touched, is suddenly withdrawn into the shell, and hence the magic change. Many curious bivalves live attached to the rocks along the coast line or in their crevices. Such are the species of *Cardita* and *Arca*, the *Spondylus gadæropus*, the *Lima squamosa*, and the date shell, *Lithodomus lithophagus*.

Where the coasts are of sand, as near Patara, we have a different set of mollusks. Immediately along the water's edge, at a depth of an inch or so beneath the sand, are buried myriads of the little bivalve called *Mesodesma donacilla*. *Solecurtus stigillatus* is found further out and buried much deeper, also *Lucina Desmarestii*, *Amphidesma sicula* and *Tellinæ*. Where the sand is coarse we found abundance of the *Venus decussata*, a shell-fish much eaten by the Greeks. The curious *Solenomya mediterranea* is also an inhabitant of sandy bays. Where the shore is muddy, as in parts of the Gulf of Macri, *Lucina lactea* abounds; and where a

stream pours in, millions of the *Cerithium mammillatum* may be seen crowded together, along with some of the more minute species of *Rissoa*. *Mactra stultorum*, *Kellia corbuloides*, *Lucina pecten*, *Venerupis decussata*, *Donax trunculus*, *Cardium edule*, *Emarginula huzardi*, *Truncatella*, *Cerithium fuscatum*, *Nassa neritea*, and *gibbosulum*, and *Auricula myosotis* complete the lists of the most constant molluscan inhabitants of the coast-line and the sea to a depth of seven or eight feet on the Lycian shores. To these we may add the pelagic *Ianthina nitens*, which is often thrown up by the waves on the sandy beach at the mouth of the Xanthus.

When by means of the dredge we explored the deeper parts of the sea near the coast, we found new assemblages of mollusks. Between twelve feet and twenty fathoms, a space in which sea-weeds abound, live numbers of species of *Pecten*, *Modiola*, *Tellina*, *Nucula*, *Lucina*, *Venus*, *Cardium*, *Trochus*, *Rissoa*, and *Pleurotoma*, many of them not found above or below that region. Also forms of *Natica*, *Dentalium*, *Phasianella*, *Nassa* and *Mitra*, many of them presenting the most beautiful colouring, both of shell and animal. Between two and ten fathoms the

most characteristic species were the *Cerithium vulgatum*, *Trochus crenulatus* and *spratti* and *Cardium exiguum*. Between ten and twenty fathoms numerous species of soft mollusks, allies of *Doris* and *Aplysia*, abound. Some of these nudibranchia have their soft slug-like bodies painted with the most vivid colours, pure blues, yellows, crimson, and green, excelling the most gorgeous flowers, the form of whose blossoms are in a manner represented by the delicate petal-like plumes of their breathing organs. This vivid colouring is peculiar to the mollusks that live in the zones nearest the surface, for when we go to great depths both shells and animals are of pale or dusky hue.

Below twenty fathoms we found a great part of the species of the upper zones replaced by others, often curiously representative in form. In many cases the succession of representations was kept up by three and even four species of a genus replacing each other in regions of depth. There was no transmutation of one into the other; each appeared with all its characters precisely defined; and usually before the characteristic species of a region had declined to the *minimum* in the number of individuals, its

successor had appeared, at first scarce and scattered, but when in its own true and characteristic province, as abundant as the predecessor had been. Below fifty fathoms we had new sets of mollusks, the range of each set extending wider and wider as we descended, until at last, beneath the great depth of one hundred fathoms, a far extending region was found inhabited by similar shell-fish throughout, and equal in extent to all the other zones united. In the deepest parts explored of this abyss, very few species were found, and it seemed as if we were approaching a region which was barren and desert, where there was no more life, unless of minute forms of low organization.

In the tract between eighty and one hundred fathoms on the Lycian coast, we found great multitudes of curious bivalves; shells of the order *Brachiopoda*, species of *Terebratula* and *Crania*, very interesting to the student of organic remains, on account of their resemblance to some of the most ancient mollusks of which we find traces in the strata composing our earth.

The shells taken from great depths in the Gulf of Macri were delicate and tender forms, often very fragile and thin. They were usually

translucent, and, in some cases, almost transparent; and no person could look upon them without remarking that, in the abysses which these curious creatures inhabited, there could be no disturbing action of waves and currents, for many of them seemed as if the slightest motion would break into fragments their fragile bodies.

Investigations into the distribution of these and other animals were carried on by the officers of the Beacon to a greater extent, and more accurately than ever done before, on the coast of Lycia. That coast afforded most favourable opportunities for such investigations. Those of our readers who may desire an acquaintance with the details of these researches, may consult the "Report on the Ægean Invertebrata," in the Reports of the British Association for 1843.

It is interesting to find that we can with certainty identify many of these Ægean Testacea with the species alluded to, or described by Aristotle. The study of them, of their anatomy and habits, seems to have occupied much of his attention; and his knowledge of their structure was certainly far beyond that of nine-tenths of modern writers on Mollusks. No

conchologist can sit down and peruse the fourth chapter of the fourth book of the History of Animals, and not wonder at the vast and minute knowledge of the author, whilst he blushes for his own ignorance. One of the most interesting shell-fish there described is the Purpura, which furnished the famous Tyrian dye. There can be no doubt of this mollusk having been the *Murex trunculus* of the moderns, a very abundant species in the Ægean. Dr. Wilde, in the narrative of his Mediterranean voyage, has given an interesting account of his search for the shells of the *Purpura* among the ruins of Tyre, and of his finding heaps of the remains of the *Murex* in question. Aristotle observed its habits with care. He remarks that it scents its prey from afar, and is taken by flesh-baits—just as our own fishermen take its ally, the common whelk, on the British coasts. He tells us that it pierces shells with its trunk. Down to within the last year or two this was believed by all naturalists, and though usually stated as the result of modern observation, was probably a notion derived from the writings of the Stagyrite. Recent researches, especially those of Mr. Hancock, would go far to shew that it is by means

of the tongue, a long rasp-like ribbon-shaped organ studded with silicious teeth, that the carnivorous univalves perforate other shells and destroy the included animals. The Purpura, he says, dislikes rain, — a remark true of all the marine gasteropods which live along the coast line.

In the Nerita (νηριτης) of Aristotle we recognise the literal forms of *Trochus*, so abundant along the rocky shores of the Ægean. His description of it as a large round smooth shell, with a short spire, and round operculum, living on rocks, puts the identification beyond a doubt. Only one species of the modern genus *Nerita* is found in the Ægean, the *Nerïta viridis*, which lives on the leaves of *Caulerpa* and other green marine plants. It is local, small, and evidently not the shell-fish so called by the ancients. Aristotle compares the νηριτης with the κηρυχ, remarking the general resemblance of the two shells in form, but distinguishes the latter as spiny. This evidently indicates another common Ægean shell-fish, the *Turbo rugosus*, a conspicuous species, which could not fail often to have come under his notice. He distinguishes not only between the shells, but

also between the animals of the two genera. His λεπας is another shell-fish recognised with facility in the common limpet of the Mediterranean; and his Sea-ear in the *Haliotis*. Although living continually attached to the rock, the ancients distinguished carefully between it and the Balanus, which was *fixed* to the rock.

The lepas, we are told by Aristotle, moves and creeps, as do the animals of all turbinated shells. The "History of Animals" is full of such generalizations, most of which are unshaken. None but a naturalist can appreciate the immense amount of minute observations which must have been made ere they could have been enunciated, and the wonderful sagacity which thus, at the very beginning of a science, perceived those general truths which were to hold good even to its completion.

Among the bivalve testacea mentioned by Aristotle, we find, on the shores of Asia Minor, the Pinna, living, as he described it, fixed by one extremity, and standing upright in sand or mud, mooring itself by a byssus. Open a few, and in five out of ten you find the little crab, the πινοτηρας, the fabled guardian and cherished friend of the pinna. It is pleasant

to find this little crab in a *Pinna* grown at home, but pleasanter to find it in a Greek *Pinna*, the descendant possibly of the one in which Aristotle caught that little crab's progenitor. The solen is another bivalve of ancient reputation which we cannot mistake. It is evidently the *Solenecurtus strigillatus*, living now, as formerly, buried two feet below the sand. The λιμνοστρεα, fixed and spiny, and of the oyster kind, was the *Spondylus*, common enough in the Greek seas. The κτεις, or comb-shell, was the *Pecten*, which, of all the bivalves, seems anciently to have attracted most attention. The beauty of its form, no doubt, gained it the honour of being the cradle of new-born yet perfect Venus. Its activity made it an object of wonder, and Aristotle truly describes it as the most active of animals without feet. He must have observed it closely and carefully, and his description of its sudden movement towards the surface of the water as if flying, making a hissing noise (caused by the movement), is very exact. He raises a question, often raised since, as to whether the scallop can see, since, on the approach of a finger, it closes its valves. Rondeletius, anxious to examine into the truth of Aristotle's account,

tried the experiment, and ventured to deny the truth of the statement,—a bold act when the writings of the Stagyrite were regarded as almost infallible. The old physician poked his finger at the scallop in vain. The mollusk took no notice. At last Rondelet advanced his finger into the scallop's gape. What took place is obvious — the scallop bit his finger. The persevering experimentalist bore the pain, and contradicted Aristotle.

Everywhere on the Lycian coast and throughout the shores of the Ægean, especially in sheltered bays, the rocks at the water's edge are alive, during fine weather, with univalve shells, which, by the rapidity and eccentricity of their movements, evidently owe their locomotive power to some other animal-mechanism than that of the mollusks who formed them. If we watch, presently we shall see some one more adventurous than the rest, attempt a miniature precipice, and failing, roll over; or perhaps two crossing each other's paths, take mutual offence and engage in desperate combat. Then it is we notice that the possessors of the shells are crustaceans, and not sea-snails—little lobster-like animals, well known to zoologists

as hermit crabs. To the naturalist who delights in the antiquities of his science, the conspicuous part played by the hermit crab on these classic shores has a double attraction, for, independent of the interest attached to the singular habits and sagacity of this curious creature, in it we see the veritable καρκίνιον, which Aristotle took so much pains to observe and describe.* This animal, he tells us, has characters common both to the crustacea and testacea. In form it resembles a χαραξος, by which name he evidently means the spiny lobster. It is born without any shell, but, like the testacea, it passes its life in a shell. Then he recounts its characters in detail, and with wonderful accuracy. After describing its anterior members, he notices the softness of the posterior half of the body (μαλακον απαν εστι), and states that it is not fixed to its shell like the animal of the whelk, and, consequently, may be easily drawn out of it. Curiously enough the truth of this statement was made a matter of controversy among naturalists in the early part of last century, for Swammerdam denied the assertion of Aristotle, that the hermit was not the true owner of his

* Περι Ζωων, iv. 4.

shell, and maintained that the contrary was the case, and that there was a muscular attachment connecting the crustacean to its house.*

Although old Rondeletius and others had previously certified to the truth of Aristotle's narrations, yet the faith of many, such as the French commentator Camus, was shaken by the great Dutchman's positive assertions, and reputation for accurate observation. Yet was the father of natural history right after all. And that he had observed most carefully is evident from his details respecting the several kinds of these hermit crabs and the variety of their borrowed habitations.

Sea-urchins are frequent on this coast as elsewhere in the Ægean, and are esteemed as an article of food by the Greeks. The species which is most abundant is the purple sea-egg, *Echinus lividus*, and it is that which is chiefly used. The variety most frequent has very long slender purple spines. The ovaries are eaten. This is doubtless the first of the kinds of ἐχῖνος mentioned by Aristotle,† of which, he says, the eggs are large and good

* Biblia Naturæ, p. 196.

† Περι Ζωων, δ. v.

for eating. It adheres to the rocks a little below the water-mark. In the inlets of the Gulf of Macri, a larger species, the *Echinus esculentus*, is found sparingly and in deeper water than the last. This is probably the Εχινομητρα of Aristotle, which he describes as the largest kind of sea-urchin; whilst his "little sort, with very long and hard spines, and living in places where the sea is many fathoms deep," and of which he says it was used "as a remedy against strangury," agrees exactly with the characters and habits of the *Cidaris histrix*, whose great spines would attract attention at all times from the fisherman, among whose lines they would get entangled, when set in water of a depth of from forty fathoms downwards. It is abundant in places on the Lycian coast.

Besides those enumerated there is the little *Echinus monilis*, better known as a fossil than as a recent species, and several of the *Spatangus* tribe, one of which, the *Amphidetus mediterraneus*, is, doubtless, the elongated urchin with soft, weak, white spines and white ovaries, mentioned by the great naturalist of ancient Greece as found in the neighbourhood of Torone. It lives on the sandy parts of the coast. Star-fishes

are as frequent as sea-urchins, those of the genus *Uraster*, *Ophidiaster*, and *Asterina*, among the rocks by the shore; *Asterias* and *Luidia*, on sandy bottoms of a few fathoms depth; whilst *Goniaster* and *Palmipes* extend their range to between thirty and sixty fathoms. The brittle-stars, however, are found at much greater depths, and in the deepest parts of the Gulf of Macri, which were explored by the dredge, even as deep as one thousand and eighty feet below the surface of the sea, the long, slender, worm-like arms of *Amphiura chiagii* were found twisting and writhing in the soft grey mud.

Among the most plentiful marine animals in muddy bays are the *Holothuriæ*, mostly long, leathery, chocolate-brown species having their heads garnished by twenty short tentacula. We did not hear of their being used as food, though they might be advantageously, since they are of the same nature as the Trepang, so much sought after as an article of luxury in the Indian seas. They are exceedingly sluggish creatures, but scarcely so much so as to permit our considering them to be identical with the creatures called *Holothuriæ* by the ancients, which are said by Aristotle to be motionless,

and of a nature between the animal and the plant, and to differ from sponges only in their being detached. May he not have had in view the large, round, sponge-like algue called *Spongodium*, living free on the sea-bed and abundant in the Greek seas? This is the more likely since (in the fourth book and eighth chapter of the History of Animals) he mentions the *Holothuriæ* of modern naturalists distinctly, when he states that experienced fishermen assert they have speared when fishing, black, round, cylindrical animals like pieces of wood; a description which cannot be mistaken since it exactly applies to the common Greek sea-cucumbers.

Several species of Echinodermatous worms, of the genera *Sipunculus* and *Syrinx*, are common in the crevices of rocks near the margin of the water; also the *Bonellia*.

Many beautiful Medusæ inhabit the Gulf of Macri; species of *Aurelia*, *Geryonia*, *Cephea* and *Rhizostoma*. Some of these, especially of the last-mentioned genus, grow to a great size. Still more beautiful is the curious creature, or mass of creatures of this tribe, called *Stephanomia*. It resembles a spike of beautiful flowers floating beneath the surface of the water. One half

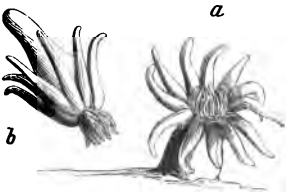
of the spike, which is nearly a foot long, is made up of transparent semi-cartilaginous scale-like bodies, arranged so as to resemble a catkin, and they are followed by innumerable grape-like organs, which contract and expand at the will of the animal. These are speckled with vivid crimson, and are intermixed with long twining tendrils, giving the whole a singularly plant-like aspect. They are as delicate as they are beautiful, and any attempt to raise them entire out of the water is almost sure to fail, as the slightest blow dissolves the union of the numerous parts composing the elegant, yet complicated, whole. Whether they form many animals bound together into a floating republic, or are all to be regarded as the varied and multiplied organs of one creature, is a question as yet open to discussion.

Almost as beautiful is the *Porpita.* The only specimens we met with were cast on shore on the sands near Patara. It is a disk of transparent cartilage, of the size and shape of a half-crown piece, marked with concentric furrows, crossed by radiating striæ. The upper surface is covered by a purple membrane; the lower bears suspended innumerable suckers of the most brilliant

ultra-marine. These suckers surround a central mouth, to which doubtless they serve to convey the animal's food. It floats in the sea, like other acalephæ, and its habits are probably similar to those of the *Cephea*, which, though it has no internal skeleton, approaches the *Porpita* in many points of structure. The *Velella* resembles the *Porpita*, but has a little sail of cartilaginous membrane elevated on its disk, like a gnomon on a dial-plate. It also is an inhabitant of the Lycian sea.

The ancient Greeks included under the name of *Acalephæ* both the Medusa and the Actinea; and indeed they closely approach in organization. When, however, we are told by Aristotle, after he has distinctly described the common rock-inhabiting *Actineæ*, that there is a kind which detaches itself at night from the rocks and goes out swimming to seek for its prey, we must not suppose (as has been hitherto conjectured) that he confounded the two animals—the floating *Medusa* and the fixed *Actinea*—and had mistaken the former for a state of the latter. In the Greek seas, and especially on the coast of Lycia there are true *Actineæ*, which are equally at home fixed to the rock and swimming about

the sea, even far from land. One species of these is about an inch long, of a yellowish-brown colour, and having a mouth surrounded by two circles of tentacula, the outer one long and the inner short. When swimming — its usual habit — it assumes a pyriform, or rather elongated bell-shape, and, directing its hinder extremity forwards, it propels itself through the water by alternate contractions and expansions of its body, exactly in the manner of a *Medusa*. But, when by the shore, or placed in a vessel filled with sea-water, it changes shape, dilates its hinder extremity into a suctorial disk, by which it fixes itself to stones, weeds, or the sides of the glass, and assumes its normal form as an *Actinea*.



The true Medusæ, and probably the *Rhizostomæ* and *Cepheæ*, are evidently distinguished by Aristotle, when he speaks of marine animals

of an orange-colour, shaped like shields, and furnished with a great many fins.*

The most common species of *Actinea* were the *Anthea cereus* and the *Actinea rubra.* From their abundance and dissimilarity, their distinctions, and at the same time resemblances, must always have attracted attention, and in them we may recognise the smaller and larger kinds of αχαληφη distinguished by Aristotle. A rarer animal of the same tribe is the *Edwardsia vestita,* which lives in a tube of mucilaginous matter and cemented stones, constructed by itself. We found *Actineæ* to range as deep as twenty fathoms.

The coast of Lycia, more than any other part of the Ægean, abounds in the only Mediterranean coral that forms masses of considerable size. This is the *Cladacora cæspitosa.* It is a group of strong cylinders, each as large as an eagle's quill, which branch and interlace, and grow in such a fashion upon the rock, as to resemble a head of cauliflower—a resemblance the more striking on account of the yellow colour of the expanded polypes terminating the

* ετερα δ'ασπισιν ομοια, τὸ μεν χρωμα ερυθρα, πτερυγια δ'εχοντα πυκνα. Περι Ζωων. iv. 7.

several tubes or polypidoms. In the Bay of Macri these masses of coral are very numerous and conspicuous near the water's edge, and to a depth of from one to two fathoms. The future visitor at Telmessus who may wish to observe these curious and elegant polypes, may see plenty of them by stepping from the ancient theatre to the rocks immediately below it. The red coral is also found on this coast, but so small as to be of no value. The depth at which some corals, both *Helianthoid* and *Ascidioid*, live here is very surprising. Thus a *Caryophyllia* allied to *cyathus* was found ranging from five to ninety fathoms: *Myriapora truncata* was taken alive from a depth of seventy fathoms: an *Alecto* was found creeping upon shells from one hundred and fifty fathoms; and an *Idmonea*, closely resembling a species found fossil in the English chalk, was taken abundantly in various depths between one hundred and one hundred and eighty fathoms, though never met with in shallow water.

Sponges are abundant in the Lycian sea. The more valued kinds are sought for about the Gulf of Macri, and along the Carian coast, and the opposite islands. Rhodes is the seat of one

of the depots for the sponges of commerce. The species which live immediately along the shore near the water's edge, though often large, are worthless. These are of many colours; some of the brightest scarlet or clear yellow, form a crust over the faces of sub-marine rocks; others are large and tubular, resembling *Holothuriæ* in form, and are of a gamboge colour, which soon turns to dirty brown when they are taken out of the water; others, again, are lobed or palmate, studded with prickly points, and perforated at intervals by osculi. These grow to a considerable size, but, like the former, are useless, since their substance is very full of silicious spiculæ. Many species, indeed, are made up of interlacing bundles of spiculæ, with animal matter in the intestines. The larger kinds are not found deeper than thirty fathoms, and most of them within a third of that depth. A few small species live at very great depths, and one was taken alive in the Gulf of Macri in one hundred and eighty-five fathoms water.

The sponge of commerce is found attached to rocks in various depths between three fathoms and thirty. When alive it is of a dull bluish black above, and of a dirty white beneath. There

are several qualities, possibly indicating as many distinct species. The best are taken among the Cyclades. The sponge-divers, however, are mostly people from the islands off the Carian coast; from Calymnos and the islands between Calymnos and Rhodes. They go in little fleets of caiques, each of six or seven tons burden, and manned by six or eight men. The season for the fishery lasts from May until September. All the men dive in turn. They remain under water from one to three minutes. They descend to the bottom at various depths between five fathoms and twenty, or even, though rarely, thirty. Very few of the Archipelago divers can descend so deep as the last-named depth, and it is doubtful whether they can work, in such case, when down. Some years ago a diver asserted he had bent a rope round the beam of a Turkish frigate sunk in thirty fathoms water off Scio. Mr. Love, when engaged in raising the guns of some of the sunken ships, confirmed his statement by finding the rope still bent round the beam. In deep water a rope weighed by a stone is let down, by which the divers ascend when they have gathered the sponges. They carry nothing about their persons except a netted

bag, which is attached to a hoop suspended round their necks; in this they place the sponges. In a good locality a diver may bring up fifty okes of sponges in a day. A very large sponge may weigh two okes. The weight is calculated from the sponges when they are dried. A sponge is dried in the sun, after being cleaned in sea-water. Fresh water rots it and turns it black. The slimy or animal matter is stamped out by the diver's feet. When dried the sponges are strung in circles. They are sold at twenty-five drachmas an oke. The chief markets for them are Smyrna, Rhodes, and Napoli.

The sponge-fisheries were probably conducted among the ancient Greeks as they are now. Hence, information being obtainable with facility, we find a full account of the sponge in the writings of Aristotle. He appears to have been deeply interested in its history, on account of the link it seemed to present between the animal and vegetable natures. Therefore the question, whether sponges possessed sensation, is discussed by him more than once, and left undecided. The statements for and against their capacity of feeling are, however, fairly put forward. The same question is debated among naturalists at

the present day, and, as anciently, there are not wanting advocates for either view. Aristotle distinguishes sponges under two heads, those that might be cleaned, and those which could not. Of the last he states that their substance was compact, but perforated by large canals. They were more viscous than other sponges, and when dried remained black. The description exactly applies to the common coast-line sponges of the Ægean, useless for economic purposes. His account of the sponges of commerce is more detailed. He distinguishes three varieties: those which were lax and porous; those of thick and close texture; and a third kind, called sponges of Achilles, finer, more compact, and stronger than the others. These last were rarest and used to be placed in helmets and in boots, as protections from pressure for the head and feet. They all grow on the rock, adhering not by one point only, nor by the whole surface, but by some extent of their surface. The best kinds grow on the coasts which become suddenly deep. He attributes the superior fineness of texture in these deep sea-kinds to the greater uniformity of temperature of the water in such places. When alive, and before they are washed, they

are black. Their canals are often inhabited by little crustacea. Such are the leading points of the account given of sponges in the fifth book of the History of Animals. The statements are very exact, and must have been the result of careful observation and inquiry. The account there given of the tunicated mollusks, animals which in external form closely resemble sponges, and, from their sluggishness, easily confounded with them by the careless observer who neglects the examination of their anatomy, affords internal evidence of the observations in both cases having been made by Aristotle himself, when endeavouring to discover essential distinctions, by which to fix the line of demarcation between the animal and vegetable kingdoms. Since his time many famous naturalists have sought to solve the same problem—but in vain, for scarcely two zoologists, even at the present day, hold the same view on this disputed point.

CHAPTER XIII.

On the Botany of Lycia.—Autumn Vegetation.—Winter Flora.—Succession of Plants observed during our spring journey.—Distribution of plants in Lycia

THE Beacon arrived at Termessus when the vegetation of Lycia was at its minimum. Few species of plants were in flower. This was in the first week of January. During the two previous months and part of October, however, one of the authors had been cruising on the coast and travelling in the interior in company with Mr. Hoskyn, when opportunities occurred for observing the vegetation of the country at the close of autumn, and the gradual appearance of a winter flora.

Mr. Hoskyn and Mr. Forbes landed at Kalamaki, near Patara, in the middle of October. The hills around that port, and in all the sheltered bays, were thickly covered with woods of *Arbutus*, which was then forming its fruit. The

beautiful polished green foliage of this tree, which here attains considerable dimensions, contrasted strikingly with its smooth purple bloomy stems. Oaks, carobs, wild olives, often of great size, figs, and in places thick groves of pine (*Pinus halepensis*) united with the strawberry trees to form the arborescent vegetation of the coast. Around the trees were thickets of storax, Daphne, and myrtles, the last often of enormous size. In more open and sandy ground the lentisk (*Pistachia lentiscus*) formed large bushes, and on loose sands the *Passerina hirsuta*. But few herbaceous plants were in flower in such places. A *Cyclamen* was not uncommon. On crossing the hills to the plain of Xanthus we found the wild pomegranate abundant, and in fruit; also the vine, which twined from tree to tree round the villages. The herbage was parched, and very few plants were in flower. White water-lilies, a species of *Ranunculus*, and a daisy (*Bellis sylvestris*) were the only kinds conspicuous. Before the end of October the travellers made a journey into the interior, the geographical and antiquarian results of which have been narrated by Mr. Hoskyn in a paper published in the Journal of the Royal Geographical Society. During this journey many

plants were collected. On the flanks of Massicytus, roses were observed in flower, also a white autumn *Crocus*, a *Leontodon*, and *Lamium maculatum*. In the grassy plains or fields of the Highlands we came upon an almost English vegetation, *Prunella vulgaris*, *Primula acaulis*, *Bellis perennis*, and *Veronica anagallis*, all in full blossom. Higher up among the barer peaks of the Massicytus, where the pines had ceased, and the cedar-juniper (*Juniperus excelsa*) was thinly scattered and in fruit, many of the more characteristic plants of the mountains of the Levant were found in flower, species of *Astragalus*, *Sanguisorba*, *Euphorbia*, *Cerinthe*, *Campanula*, *Echinops*, and *Sideritis*. *Ernodea alpina* was also notable, both for the beauty of its blossoms and their stench. On the summit of the highest peak we ascended, at an elevation of nine thousand feet, the most abundant plant was an *Achillea*, not in flower, but remarkable for its feather-like foliage (*Achillea umbellata?*) On descending into the yailahs of Almalee, to a point where the plain is about five thousand feet above the sea-level, we passed successively from the region of tree-junipers, into pine forests, and then into a belt of oaks. The rocky margin of this yailah was thickly covered with shrubs, mostly

Quercus coccifera, and *Jasminum fruticans*. Very few plants were in flower. It was evident that we were too late to reap a botanical harvest, nor did the remainder of our journey add many species to our stores. The only one of note was the curious and rare *Origanum sipylum*, of which we found a few specimens in flower between Tremeely and Ebagik. On the serpentine hills near Hoozumlee we found a fern, *Cheilanthes odora*, abundant and in good state.

During November and December many points of the coast were examined. The number of evergreens gave the country the aspect of summer rather than of winter. A small but peculiar flora appeared. Every where in stony places the *Arisarum vulgare* exhibited its dull but curious spathes. The grassy plots were starred with daisies, not our *Bellis perennis*, but the much larger flowered *Bellis sylvestris*. On the sandy flats the *Passerina* exhibited its gracefully drooping branches, yellow with small flowers. On the cliffs near the sea, the samphire (*Crithmum maritimum*) and the *Polygonum equisetifolium* were in full blossom; also a wild cabbage, apparently *Brassica cretica*. The only showy plants ob-

served were a beautiful white Narcissus, which flowered luxuriantly on grassy plots in a little island off the coast of Peræa, and *Clematis cirrhosa*, twining over shrubs in the islands of the Gulph of Macri, and covered with a profusion of white flowers. The wild olive was loaded with ripe fruit, and the pods on the carob tree were beginning to shew.

With the new year new plants appeared; and conspicuously the *Anemone coronaria*, which first sent out a scattered blossom here and there among the grass, but soon covered the fields and plains with a gorgeous carpet of crimson and purple. Then the common daisy came up to take the place of *Bellis sylvestris*, which quickly disappeared. Rivalling the *Anemone* in beauty, and profusion, and taking its place in rugged ground, appeared the *Trichonema bulbocodium*. The almond and the tree-spurge (*Euphorbia dendroides*) began to flower. In the plains were flowering some other species of Euphorbia. The mandrake was occasionally met with. In the cultivated grounds *Veronica cymbalaria* and *agrestis*, *Cardamine hirsuta* and *Erodium cicutarium* were the flowering weeds.

February called forth many additions to the

flora. The yellow stars of *Gagea arvensis* covered the rocky and grassy grounds, in company with *Erophila*, *Arabis verna*, and *Thlaspi montanum*. The field marigold, the common groundsel, the shepherd's purse, *Fumaria capreolata*, *Solanum nigrum*, *Euphorbia helioscopea*, and *peplus*, *Lamium amplexicaule*, *Saxifraga tridachtylites*, and *Ficaria ranunculoides* were European forms which often met the eye. *Scrophularia canina*, *Biscutella eriocarpa* and *Hyoscyamus aureus* ornamented the walls at Macri; and at Tlos, the last was accompanied by a beautiful white *Arabis*. Among the shrubs the *Colutea arborescens* now opened its yellow flowers, and the fragrant purple blossoms of *Daphne collina* perfumed the valley of the Xanthus. The beautiful *Orchis papilionacea*, and several species of *Ophrys*, were in flower on the tertiary plains, and *Senecio squalidus* on the serpentine.

The rarest and most interesting plants met with this month were *Saxifraga hederacea* which grows on moist rocks and among tombs, and *Tulipa Sibthorpiana*. The yellow flowers of this tulip droop, and are not larger than those of a snowdrop. The leaves of specimens gathered at Macri, where it grows among the thickets near

the Theatre, were much narrower than those represented in the Flora Græca.

By the first of March great numbers of spring flowers had opened. *Asphodelus ramosus* was the most conspicuous. *Lavendula stœchas* displayed its compact purplish spikes on the serpentine hills near the sea. At Xanthus we gathered many inconspicuous though interesting species, as *Plantago lagopus* and *psyllium*, *Erodium malacoides*, *Veronica præcox*, *Parietaria cretica*, *Vallantia hispida*, *Anthemis mucronulata?* *Rumex bucephalophorus*, and *Biscutella ciliata*. The *Valeriana Dioscoridis*, and *Salvia officinalis* were also in flower among the ruins.

Among the shrubs *Cytisus spinosus* was in flower. Some common British plants were mixed up with the strangers, as *Sonchus oleraceus*, *Anagallis*, *Saxifraga tridactylites*, *Stellaria nemorum*, and *Cerastium vulgatum*. *Ranunculus aquatilis* was in full bloom in the ponds among the marshes. Between Xanthus and Antiphellus we did not meet many species of interest. A curious *Ajuga* (*chia?*) was the most novel. At Antiphellus we found a southern sea-side vegetation in great luxuriance, and full bloom. Great bushes of *Euphorbia den-*

droides covered the warm rocky slopes of the hills, mingled with *Styrax*, *Phillyrea latifolia*, and shrubby *Labiatæ*, species of *Teucrium*, *Phlomis*, *Salvia*, and *Lavendula*, scenting the air with their fragrance. We gathered also some curious species of *Cruciferæ*, and *Leguminosæ*. Among the former was *Isatis lusitanica*. *Helichrysum stæchas* was in full blossom here, forming little bushes. Near the theatre we found two very interesting plants growing in the crevices of rocks,—*Andrachne telephioides*, and *Aristolochia parvifolia*. When Mr. Daniell returned from Castel-Rosso he brought with him such wild flowers as had attracted his notice. Among them were *Allium neapolitanum*, *Erodium gruinum*, and an *Anthemis*, all new to our collections. Our journeys into the uplands behind Antiphellus, when seeking for the site of Phellus, contributed to our botanical, as well as antiquarian, treasures. In the plain of Tchookoorbye we gathered a curious little *Bellis*, a violet probably new, and the beautiful little *Veronica grandiflora* of Don, as yet only known as a Lycian plant. In the tertiary plains of the valley of Cassabar, we added to our collection of *Orchideæ*. *Ophrys fusca*, and *speculum*, were

the commonest species, the latter of exquisite beauty; its flowers seemed as if each was a little mirror of ultramarine glass framed in a fringe of crimson velvet. On the hills around, the *Orchis longicornis* grew in great abundance. This is the species whose roots are chiefly collected by the natives for Salep. The musk hyacinth was mingled with the Orchids on the plain, and with it grew a beautiful yellow *Trichonema.*

Our visit to the highland plain, on which we found three ancient cities bearing the name Cyanæ, furnished us with an abundant supply of the *Veronica grandiflora,* which covered the ground in such profusion as to render the fields literally blue. Might not this natural feature have suggested the name of the cities there built? In cultivated ground we gathered the curious *Leontice.* On the hill sides the little *Asterolinum stellatum* grew in profusion. At Trabala we gathered some interesting species of *Silene* and *Galium.* In the Dembra gorge two plants were very conspicuous, the *Phaca bœtica,* with its showy racemes of white flowers, and a beautiful Fritillary, possibly a new kind. The latter is mentioned in Professor Don's list as

Fritillaria meleagris, but is very distinct from that species. Its flowers are striped in broad flames, with purple, yellow, and green, but never tesselated. We met with it afterwards in rocky gorges leading from the plain of Phineka.

Our rest at Myra enabled us to make it a botanical station, in which, however, the profusion of plants new to us rather embarrassed us with its riches. The plain was covered by anemones and asphodels, varied by the gracefully-drooping shrubs of *Passerina hirsuta*. The thickets on the hill-side among the tombs, and by the theatre were filled with curious and rare plants, and the seats and arena of the theatre itself afforded a rich harvest. Here grew *Aloe vulgaris*, not yet in flower, and the castor-oil tree (*Ricinus communis*), the white henbane, the *Cynoglossum pictum*, the *Phlomis fruticosa*, forming great bushes, covered with hoary leaves, and crowned with heads of bright yellow flowers, the *Smilax* and *Tamus*, and the *Lentisk*. A host of *Leguminosæ* exhibited flowers of every hue and size: species of *Pisum*, *Lathyrus*, *Vicia*, *Onobrychis*, *Scorpiurus*, *Trigonella*, *Medicago*, *Coronilla*, and *Trifolium*. Perhaps the most beautiful was the

Pisum fulvum. *Compositæ*, *Labiatæ*, *Borragineæ*, and *Cruciferæ*, were equally abundant and varied. Many beautiful species of *Convolvulus* were also in flower. *Briza maxima* was a conspicuous grass. A *Ruta* (*divaricata*?) was very abundant, the leaves of which are used at Smyrna to flavour bitters. It is called urzelik and sedef by the Turks. Perhaps the most curious plant we found at Myra was the *Aristolochia hirta*, whose large gaping, hairy, purple flowers resembled the open mouths of some ferocious reptile.

On our journey from Myra to Phineka, we gathered *Anchusa undulatifolia*, and some additional species of *Ophrys*. Also a beautiful blue *Orobanche*, some curious species of *Vicia*, the pretty *Helianthemum arabicum*, and, among the hills, *Anthericum græcum*. At Phineka we saw the only palm trees, with the exception of those at Macri, which we met with in Lycia. The banks of the river Arycandus were clothed with a rich vegetation, including many flowers with which we had not hitherto met. *Iris pseudacorus*, *Chrysanthemum segetum*, *Lemna minor* and *trisulca*, and *Stachys arvensis*, reminded us of home; *Ranunculus ophioglossifolius*, and the rare

R. millefoliatus, *Scrophularia lucida*, *Smyrnium perfoliatum*, a beautiful blue *Convolvulus* (*siculus ?*) and *Lamium moschatum* were among the strangers. We gathered many kinds of grasses and sedges in the meadows. Alders and hawthorns were here common; and the ravines by the hills were full of oleanders not yet in flower, and groves of bay-laurels (*Laurus nobilis*). The woods were chiefly of oak. Among the ruins of Limyra the plants were those of Myra, with the addition of new forms of trefoil and vetch. The pretty little *Coronilla iberica* was in full flower.

The first week of April was spent in the plain of Phineka, and the valleys which lead out of it. The natives were cutting grass for hay; and in their fields we found many spring plants in flower, with which hitherto we had not met. We added also to our list of Orchids. In the meadows of the plain *Orchis undulatifolia* was in full blossom, and on the chalky hills *Ophrys tenthredinifera* and *apifera*, with other species new to us. *Trifolium stellatum* and *tomentosum*, several species of *Ranunculus*, *Scandix australis*, *Lagurus ovatus*, and *Plantago creticus* were gathered around Armootlee and Corydalla; also some familiar British plants, as

Euphorbia exigua, common in corn-fields here as in the south of England, *Coronopus Ruelii*, *Plantago coronopus*, *Nasturtium officinale*, and *Stellaria graminea*. The magnificent *Arum dracunculus*, the δραχοντιον of Dioscorides, and still so called by the modern Greeks, was now in full blow; its great trumpet-like spathe, lined with morone velvet, attracted numbers of insects, more through the unpleasantness of the odour the flower exhaled than from its beauty. Our journey up the valley of Karditch, where we found the ancient cities of Edebessus and Akalissus, did not add much to our botanical collections. A few *Ophrydeæ*, *Muscari comosum*, a fine *Doronicum*, and some handsome species of *Ranunculus* were the principal additions.

From Armootlee to Gagæ our route lay partly along the shore. On or near the sands we found the hoary *Medicago littoralis*, a yellow flowered *Ononis*, *Trifolium augustifolium*, and a yellow flowered trefoil, and *Trigonella fœnum græcum*. Gagæ yielded many interesting species. Here we found the manna ash (*Ornus*) in flower, the *Osiris alba*, the *Spartianthus junceus*, and *Psoralea bituminosa*. To our Orchideæ we added

the *Limodorum*, the *Serapias cordigera* and *Serapias lingua*. Here also were collected many fine species of *Boragineæ* and *Scrophulariaceæ*. The *Gladiolus imbricatus* was abundant in the fields, with *Tragopogon porrifolius*. On our journey from Gagæ to Olympus we found the beautiful *Anthemis rosea* in great profusion; also *Poterium sanguisorba* and *Helianthemum guttatum*. At Olympus the *Tamarix gallica* and *Ononis Cherleri* were in flower, with a large yellow *Phlomis* and a *Salvia*, both new to us. Here we found, growing abundantly among the ruins, the interesting umbellifer *Artedia squamata*. Our excursion to the Yanardagh, near Olympus, introduced to us the very peculiar vegetation of the serpentine hills there, and we gathered fourteen species, which we did not meet with elsewhere. *Convolvulus cantabrica* was in fine flower near the fire.

At Phaselis we found the large blue lupine and the luxuriant *Verbascum pyramidatum*. The ascent of the mountain pass to Saharajik filled our vasculum with many interesting plants. A beautiful veronica with deeply divided leaves and large blue flowers, a fine crimson peony, a fine species of Star of Bethlehem, the little

periwinkle, an Aristolochia new to us, and several handsome kinds of astragalus and vicia were among the number. *Barbarea arcuata* and *Arabis hastata* were also found on the journey. *Anagyris fœtida* and several species of *Cytisus* were shrubs now in blossom. The *Anemone appennina* was in full flower on the highest parts of this pass, along with *Ornithogalum collinum*. Descending to the Pamphylian plain, we passed through woods where the *Cercis siliguastrum* was covered with purple blossoms, and privets and roses were in flower. Some curious species of *Cerinthe*, *Alyssum*, *Cerastium*, and *Silene*, were found near Tchandeer. The sea-shore near Adalia was variegated with *Hypecoum*, *Anthemis*, *Medicago*, *Mathiola*, *Herniaria*, *Glaucium* and *Fœdia coronata*. By the ditches of the fortifications of Adalia the *Iris florentina* was flowering, and a curious little saxifrage-like *Arenaria* upon the walls. When on reaching the Golook pass, we ascended to the ruins of Termessus Major, we gathered there for the first time the pretty *Geranium tuberosum* and the *Malope malacoides*.

The first of May found us in the yailahs, on plains more than three thousand feet above

the sea, surrounded by a very different vegetation from that we had left in the low country and on the hills bordering the shore. At Stenez we found many treasures, mixed with such common European plants as *Erysimum alliaria* and *Asperugo procumbens*. Many curious cruciferous plants were common here. One of them, *Moricandia arvensis* was abundant in cultivated ground. *Glaucium violaceum* grew in similar localities. On the bare and barren parts of the plain *Scutellaria orientalis*, *Lithospermum orientale*, *Onosma erecta*, and *Anchusæ*, (*cæspitosa*, and *parviflora ?*) were the characteristic plants. They grew in little scattered tufts. On a hill by Stenez we gathered some curious little *Borragineæ*, species of *Myosotis* and *Echinospermum*. During our journey thence to Lake Caralitis, we passed over some very high ground, where *Prunus prostrata* filled crevices of rocks and was showy with beautiful crimson flowers. A curious hoary *Anthemis*, a *Thesium*, an *Arabis*, a dwarf *Centaurea*, and a pretty spreading *Veronica* grew near it. Higher still, beside the snow on the summit of the mountain above the lake, at an elevation of more than six thousand feet, *Anemone appennina* was found in abundance, with *Scilla bifolia*,

Corydalis rutæfolia, *Draba aizoides*, and a pretty blue *Crocus*.

At Tangur we found *Veronica triphyllos* in flower. In the Gule-Hissar an old friend met us in the shape of *Hippuris vulgaris*. From a high mountain above Cibyra, besides the alpine plants mentioned as gathered above Caralitis, a beautiful little fritillary, with rich orange and brown flowers, an alpine *Gagea* (*G. spathacea* of Professor Don's list, but scarcely that species), a peculiar *Alyssum*, a white *Draba*, and a *Lithospermum*, were all found flowering near the snow.

Between Cibyra and Bubon we found the common primrose and the dog violet in flower, with some curious species of Silene, the *Anthyllis Hermannii*, two forms of *Onobrychis* and *Calycotome villosa*. Balbura, both from its elevation and the geological character of the neighbourhood, became an interesting botanical station, and there we carefully compared the vegetation of the serpentine with the limestone hills of the highlands. Nearly fifty species, which we had not met with before, were gathered in this locality, many of them very curious. Near Oenoanda we found a curious *Linum* with

opposite leaves and purple flowers. The hairy alpine poppy was in flower here. The neighbourhood of Esky Hissar and Adalia supplied us with *Reseda undata*, *Delphinium peregrinum*, *Lagœcia cuminoides*, *Fibigia clypeata*, and some interesting forms of *Cynoglossum*, *Draba*, *Scrophularia*, and *Paronychia*.

In the corn fields around Almalee the blue-bottle (*Centaurea cyanus*) was flowering as in corn-fields at home. The *Malope* and the *Acanthus* were in blossom upon waste ground. In the thickets around the edge of the plain the holly-oak (*Quercus coccifera*) was mingled with the yellow jasmine (*Jasminum fruticans*) now in full bloom. Leaving the yailah plains, and travelling from Armootlee to Arsa we passed over some high ground, mostly covered with pine-forests, and at its upper part with woods of *Juniperus excelsa*. On our way we were attracted by several fine plants, especially *Tulipa oculus solis*, which flowered gorgeously in open grassy spaces. Some handsome mountain species of ranunculus were common. The pretty *Myogalum nutans* was also in full flower, and several shewy onions. Some curious spurges were gathered. We met with *Polygala venulosa* for

the first time; at Arsa it was accompanied by the *Polygala monspeliaca*. The vegetation at Arsa was a mixture of that of the mountains with the flora of the lowlands. The wild vine was in flower, and the storax. The first *Pedicularis* we had seen in Lycia was met with here. A beautiful little onion, allied to *Allium staticiforme*, and a pretty *Sedum* (*Hispanicum ?*) were in flower among the ruins. *Ornithopus scorpioides*, and the crimson flowered variety of *Tetragonolobus siliquosus* were abundant, with many other pretty *Leguminosæ*. Some fine *Labiatæ* now began to display themselves. Among common British plants noted by us here, were *Potentilla reptans*, *Euphorbia helioscopia*, and *Plantago lanceolata*. *Malva althæoides*, *Fœdia cornucopiæ*, and *Bupleurum spinosum* were among the additions to our collection from this prolific locality.

When we returned to the valley of the Xanthus on the 21st of May, we found the aspect of the flora entirely changed from that presented by it when we left in March. The spring vegetation had disappeared, and the summer plants of the Mediterranean flora had taken their places. The more exposed parts of the plain were already becoming parched, except in

the immediate neighbourhood of the river. There long ranges of the great reed (*Arundo donax*) were diversified by flowering spikes of *Typha*, and the damp, but fast drying-up ground, was covered by *Cyperus* and *Holoschœnus*. The rocky dells and shady ravines were filled with oleanders, exhibiting great masses of their beautiful rose-coloured flowers; and on the ledges of the precipices grew numerous bushy species of *Centaurea*, *Campanula*, and *Dianthus*. Round the houses many novel *Labiatæ* were in flower, especially kinds of *Marrubium*. The air was fragrant with *Origanum*; and over the bushy cymes of *Origanum onites*, hundreds of that beautiful lace-winged fly, the *Panorpa*, might be seen hovering. Had we been able, a rich botanical harvest might have been then reaped, but time was pressing, and the danger of the malaria fever was too near at hand to admit of lingering longer in this Paradise of summer flowers.

A few days after, we ascended Cragus, and carefully collected every plant then flowering on the mountains. On ascending from the lowlands we gathered *Cynanchum erectum*, a *Potentilla*, a curious little *Arum*, and some

species of *Verbascum* and *Hypericum*. On the higher parts of the mountain we found *Aubrietia deltoidea*, a silvery leaved *Ranunculus*, an alpine variety of *Veronica cymbalaria*, *Draba aizoides*, and *Scilla bifolia*, whose exquisitely blue flowers contrasted with the snow-masses in the clefts, near which they always grew; also a beautiful Fritillary of small size, but bearing a large tessellated flower (*F. Fleischeri?*), *Scutellaria orientalis*, *Prunus spinosa*, a *Ranunculus* very near *R. Thora*, a *Centaurea*, an *Astragalus*, a *Cotoneaster*, a very pretty little *Ornithogalum* with white flowers and filiform leaves, and a number of cruciferous plants belonging to several genera. A variety of the common pansy occurred—perhaps *Viola gracilis* of Sibthorp. The cedar-juniper (*Juniperus excelsa*) was now forming its fruit. The mountain maple grew beside it. These were the last plants collected by us in Lycia.

Probably the best season for exploring the botany of Asia Minor is the end of spring and commencement of summer,—that part of the year when we were obliged to leave the Lycian shores. Consequently our collections afford but imperfect materials for determining the flora of the country in which they were

gathered. Nevertheless the number of species collected was considerable, and as all were laid by with careful records of the time and place when and where they were gathered, and what relations they seemed to present with the general vegetation of the region, they enable us to portray, in miniature, the features of Lycian vegetation.

The surface of the country consists of plains and deep valleys bounding or leading from the sea, and of high mountains, with steep forest-clad sea-ward slopes, walling in alpine plains, mostly bare and treeless, except around the villages. These topographical features indicate as many botanical regions. The first includes the great maritime plains and valleys—the vegetation from the edge of the sea to an elevation of about fifteen hundred feet. The second includes the mountain-slopes towards the sea, from an elevation of fifteen hundred to nearly three thousand feet, and the yailahs or highland valleys which open out seawards. The third is the great inland region of subalpine plains—the true yailahs, the inhabited parts of the table-land of Asia Minor, elevated from three to five thousand five hundred feet above the sea, and in some places presenting

an uniform vegetation to a greater height. A fourth botanical region of elevation is presented by the mountain peaks and ranges, elevated from six to ten thousand feet above the level of the sea, which rise out of the table-lands and wall them in. We shall now attempt to sketch the principal botanical features of these several regions.

I. REGION of the maritime plains and valleys. The vegetation of this region is that characteristic of all the Mediterranean shores. The majority of plants which flower on the Lycian shores and maritime plains, may be met with from Spain to Asia. Oaks, oriental planes, and peculiar pines constitute its forests; *Leguminosæ*, *Labiatæ cruciferæ*, *Caryophylleæ*, *Liliaceæ*, and *Irideæ*, make up its herbaceous vegetation. In Lycia the low hills of this region are covered with myrtle, *Arbutus*, *Daphne*, *Phlomis*, *Styrax*, *Cistus* and Lentisk; the *Elæagnus*, the Oleander, the Chastetree, and *Colutea*, are the shrubs which are most conspicuous on the borders of the plains; the fences are constructed of Christ-thorn (*Paliurus echinatus*); in the neighbourhood of the sandy shores grow *Passerina* and *Ruscus*: the waste ground is studded with bushes of

juniper (*Juniperus Phœnicea*), spiny burnet (*Poterium spinosum*), spiny cichory (*Cichorium spinosum*), and *Lithospermum hispidulum*; on the rocks by the sea-side great bushes of tree spurge (*Euphorbia dendroides*) are mingled with more humble but more gaily flowering shrubby knots of variously coloured knapweeds (*Centaurea*), and everlastings (*Helichrysum*). These extend up the hill sides and mingle with shrubby *Labiatæ*. In waste places the *Ricinus* grows, and the gorgeous dragon arum. Along the marshes the great reed (*Arundo Donax*), flourishes in miniature forests, and is often used to fence the fields on the alluvial plains. The damper parts are covered in autumn by the tall golden-flowered *Asteriscus aquaticus*.

The wild olive covers the hills, wherever the Pine (*Pinus maritimus* and *halepensis*) and the Arbutus leave room. The balanea oaks (*Quercus ballota, aegilops,* and *infectoria,*) afford ample shade. The mastic, the fig, and the mulberry are not unfrequent, both cultivated and wild. The Oriental planes afford abundant shade near every village, and the dark and towering cypress is planted by the place of burial, but grows wild in the ravines. The pomegranate flourishes in

great abundance and its wild fruit supplies a grateful refreshment under the warm sun of autumn. The almond and manna-ash grow wild among the rocks, and the bay and Judas-tree in the ravines. The orange and the lemon are cultivated. Melons, cucumbers, sesame, maize, cotton, capsicum, lentils, kidney-beans and balmias (*Hibiscus esculentus*) are the common cultivated vegetables.

The wild herbs of the low country are many and varied. The sandy sea-shore abounds in species of *Medicago*, among which the hoary foliage and yellow flowers of *Medicago littoralis*, and the *Lotus creticus*, are conspicuous. Also the horned poppy (*Glaucium luteum*), the *Hypecoum*, and the purple flowers of *Malcomia*. The weeds of cultivated lands and waste grounds are those of the south of Europe, and among them the spurting cucumber (*Momordica elaterium*), the *Acanthus*, and the *Tribulus*, especially attract our attention. The green sward at one season is gay with anemonies, at another with many species of ranunculus. Numerous curious kinds of *Orchis* and *Ophrys*, musk-hyacinths, asphodels and star of Bethlehem adorn the plains, and everywhere are prickly but gaily flowering herbs

of the genera *Echium*, *Lycopsis*, *Lithospermum*, and *Anchusa*, among the Borage tribe, and *Echinops* and *Carthamus* among the Thistles.

Plants, curious rather for aspect than for beauty, as *Lapsana stellata*, *Hedypnois rhagadioloides*, *Salvia horminum*, *Ziziphora capitata*, *Hymenocarpus circinatus*, *Trigonella*, *Biserrula*, *Andrachne*, and *Aristolochia*, arrest the attention of the botanist at every turn.

By the sea-shore, in many places, kinds of *Statice* abound. The most beautiful is the *Statice sinuatum*, which covers the interstices of bare and waste rocks, with its handsome lilac flowers and wavy foliage — the more pleasant to look upon, since in early summer, except some bushy and ugly, though strongly-scented *Labiatæ* there is little else of verdure to attract the eye in such places.

II. Region of mountain-slopes and sea-ward uplands. This is the chief realm of the oak and pine-forests, for which Karamania is famous. It is botanically a region of transition, wherein the flora of the sunburnt lowlands is mingled with more temperate forms and with the characteristic plants of the table-land of Asia Minor. It abounds in species of broom, and other shrubby

Leguminosæ, among which *Anagyris fœtida* is especially conspicuous, and sure to attract the attention of the traveller when loaded with its singular inflated pods. The dwarf holly-oak (*Quercus coccifera*) is abundant everywhere. The Salep orchis abounds. The walnut is the most plentiful and conspicuous tree around the villages. Vineyards and tobacco fields yield rich produce in this zone. Many common British herbs attract attention here—the primrose, the pimpernel, the dog-violet, the pansy, and the self-heal. Everywhere the *Lamium maculatum*, is plentiful. Such ferns as do occur are chiefly found here. Maples are frequent, as are also willows, chaste-trees, the *Rhus cotinus*, and the tamarisk. The carob is common here as well as in the Lowlands.

III. Region of the yailahs or mountain table-lands. The yailahs of Almalee, three thousand six hundred feet above the sea, of Seydeleer four thousand, of Cibyra three thousand five hundred, and of Stenez three thousand three hundred, furnished us with our chief collections from this region. They are very even and apparently flat, though really sloping plains, each watered by a stream, and either continually or for a portion of the year presenting a lake at the lower extre-

mity. They have no outlets. The centre of the plain is bare and treeless, except near the villages, which are surrounded by walnut-trees, Lombardy poplars, apples, apricots, and pollard willows. Planes are comparatively scarce. In some of the warmer and less elevated yailahs, large oaks and elms are met with, but the forest belt which margins them is commonly of pines. Thickets of *Quercus coccifera*, Berberry, and yellow jasmine cover the waste and rocky grounds near their edges. The vine is grown on the plains of Almalee and Saideleer, and good grapes for eating are produced. Much corn is cultivated on the yailahs. In cultivated grounds the common weeds are *Alliaria officinalis*, *Asperugo procumbens*, *Sisymbrium Sophia*, *Malope malacoides*, *Erysimum officinale*, *Hypecoum*, *Lamium moschatum*, *Scandix australis*, *Centaurea cyanus*, *Fumaria parviflora*, and species of *Bupleurum*. The more characteristic herbs are *Geranium tuberosum*, *Androsace maxima*, *Scutellaria orientalis* *Euphorbia rigida*, *Lithospermum orientale*, a yellow *Galium*, and species of *Cerinthe*, *Onosma*, *Arethusa*, *Cynoglossum*, *Myosotis*, and *Echinospermum*. Many curious forms of *Compositæ* and *Cruciferæ*, also occur. *Cruciferæ*, *Borragineæ*, *Compositæ*, and

Caryophyleæ, outnumber all other orders in the yailahs.

REGION IV. Above the yailahs, and bounding them is the region of mountain peaks. These reach to various heights from six to ten thousand feet, and are bare and treeless towards their summits. The snow rests in crevices throughout the year, and during winter and spring forms extensive and conspicuous masses. Below the snow, the pale yellow and bare limestone is speckled here and there by the gloomy foliage of the *Juniperus excelsa*, a clumpy and cedar-like tree, which becomes more abundant as we descend, until at between six and eight thousand feet, it forms a dark zone round the mountain and again diminishes to give place to pines. It is the tree called "cedar" by travellers in Asia Minor. Near the snow and above the junipers, alpine fritillaries, and violets, *Fumaria rutæfolia*, *Scilla bifolia*, *Draba aizoides*, *Achillea umbellata*, *Crocus nivalis*, *Anemone Appenina*, and some species of *Gagea*, *Ornithogalum*, *Veronica*, *Alyssum*, and *Draba*, are the characteristic plants. Where the snow occupies crevices considerably lower down, these plants may be often found growing beside it. In the

belt of cedar-juniper, and towards its upper part, grow species of *Gnaphalium*, *Campanula*, *Cerinthe*, *Sideritis*, *Alchemilla*, *Scorzonera*, and *Santolina*, with which we do not meet much lower down. Here are also *Prunus prostrata*, *Ernodea alpina*, *Digitalis ferruginea*, *Aubrietia deltoidea*, and peculiar species of *Aretia*, *Colchicum*, and *Crocus*.

Throughout our journeys we paid careful attention to the relations of the distribution of the indigenous plants to the soil in which they grew. The simple features of the geology of Lycia and the constancy of mineral character of the various rocks over considerable tracts of country enabled us to do this with facility and precision. Whilst each of the several regions into which we have attempted to divide the vegetation of Lycia considered as to its vertical distribution, presented a general character of its own, that character was locally varied according as the foundation rock was the hard appennine limestone, the sandy rocks which cap it, the soft tertiary marls and conglomerates, or the brittle and barren serpentine, the only igneous rock in this part of Asia Minor which occupies sufficient space to affect the flora.

At almost any distance we could distinguish

the serpentine from the limestone country, not merely from the peculiar bossy character and pink colour of the hills of the former, contrasting strongly with the abrupt and broken escarpments and grey and yellow rocks of the latter, but also from the disposition of the arborescent vegetation. On the serpentine usually pines only grew and never in thick forest masses, but scattered,—as it were, individually,—and as if they had been planted in a quincunx arrangement. Where the limestone was wooded—and in many parts it bore great forests,—thick clustered oaks covered a luxuriant underwood, interrupted by groves of strawberry trees, and by clumps of lofty pines. High in the mountains the pines prevailed over the oaks, and higher still, the cedar-junipers replaced them. In the region of the upland slopes much of the mountain sides consist of greenish sandstones probably intermediate in age between the secondary and the distinctly tertiary rocks. These were usually covered with dense forests, consisting exclusively of pines, though on the neighbouring limestone the oak was the prevailing tree.

The contrast between the vegetation of the limestone and the serpentine was maintained

equally in the yailahs and among the higher mountains, and in the low country near the sea. In the latter we found the serpentine in spring always indicated by the presence of *Senecio squalidus*, a conspicuous little *Erophila*, and the fern *Cheilanthes odora*, which occupied the place taken by the *Acrostichum lanuginosum* on the limestone. Peculiar species of *Alyssum* also distinguished the herbage of the two rocks.

In order to establish a comparison between the vegetation of the serpentine and the limestone in the mountain region, two points were selected, the one an isolated hill of serpentine, near Balbura, rising about six hundred feet out of a plain, four thousand seven hundred feet above the sea; and the other, that portion of the peak of Cragus corresponding in elevation. Every plant in flower was gathered on each station and such trees as were present noted. Both localities were equally bare and rocky, and the herbaceous vegetation on each consisted of little patches of plants growing in crevices of the rocks, and was remarkable for presenting scarcely any grasses among the species composing it.

On the serpentine at the Balbura station we gathered forty-eight species. They belonged to the following genera:

Ranunculus, 1.
Alyssum, 1 (peculiar).
Thlaspi, 1.
Arabis, 1.
Draba, 1 (peculiar).
Malcomia, 1.
Polygala, 1 (peculiar).
Erodium, 1.
Astragalus, 2.
Cytisus, 1.
Sanguisorba, 1.
Undetermined Umbellifer, 1.
Cerastium, 2.
Arenaria, 1 (peculiar).
Stellaria, 1.
Silene, 2.
Paronychia, 1.
Thesium, 1.
Fedia, 1.
Viola, 1 (peculiar).
Sedum, 1.
Cyclamen, 1.
Galium, 2.
Scorzonera, 1.
Hieracium, 1.
Senecio, 1.
Crepis ? 1.
Anthemis, 1.
Verbascum, 1.
Onosma, 1.
Myosotis, 2.
Polygonum, 1.
Euphorbia, 1 (peculiar).
Berberis, 1.
Juniperus, 2.
Pinus, 1.
Muscari, 2.
Ornithogalum, 1.
A single grass and a fern *(Cheilanthes)*.

On the limestone station at Cragus we gathered forty-three species. They belonged to the following genera:

Ranunculus, 2.
Aubrietia, 1.
Matthiola, 1.
Thlaspi, 1.
Brassica, 1.
Alyssum, 1.
Draba, 2.
Cochlearia, 1.
Geranium, 1.
Corydalis, 1.
Astragalus, 1.
Prunus, 1.
Umbelliferous plant in bud, 1.
Cerastium, 2 (different from those at Balbura).

Arenaria, 1.
Sabulina, 1.
Silene, 1.
Viola, 1 *(tricolor)*.
Sedum, 1.
Galium, 1.
Anthemis, 2.
Ajuga, 1.
Clinopodium, 1.
Lamium, 1.
Cynoglossum, 1.
Myosotis, 1.
Anchusa, 1.
Cerinthe, 1.
Acer, 1.
Juniperus, 1.
Pinus, 2.
Scilla, 1.
Ornithogalum, 1.
Tulipa, 1.
Fritillaria, 1.
Myogalum, 1.
And two grasses.

The vegetation of the tertiary plains and hills is similar to that of the softer and more chalky portions of the limestone. On them the species of *Ophrys* are most abundant. The plants of the travertine plain of Pamphylia are those of the neighbouring limestone. The more recent calcareous formations, both soft and hard, however, do not bear the luxuriant arborescent vegetation which flourishes on the older. The sandy plains near the sea, and those of alluvial origin, are inhabited by many species not found elsewhere; these we have already noted when describing the succession of plants observed during our journey in spring.

The sea-weeds of the Lycian shores are those of the rest of the Ægean. Along the coast line,

Padina pavonia and *Dictyota dichotoma* are abundant. Deeper, and usually on muddy ground, to a depth of several fathoms, grow the vivid green and elegant fronds of *Caulerpa prolifera*, which, when enumerating the fishes, we have shewn to have probably been the sea-plant called Prasium by the ancients. The curious sponge-like *Codium bursa*, the *Sargassum salicifolium*, species of *Cystoseira* and *Sporochnus*, *Haliseris polypodioides* and *Dictyomenia volubilis*, may be taken along with the *Caulerpa*. The *Dictyomenia*, conspicuous on account of its stiff corkscrew-like purple fronds, has a great range in depth, since we dredged it even in fifty fathoms of water, associated with *Ritiphlœa tinctoria* and *Chrysimenia uvaria*. *Codium flabelliforme* occurred at the entrance of the gulph of Macri in thirty fathoms, associated with that rare and curious vegetable net, the *Microdictyon umbilicatum*. Below fifty fathoms no flexible sea-weeds were observed. The coral-like *Millepora polymorpha* took their places, and ranged even as deep as one hundred fathoms. Beyond that depth we found no traces of vegetable life, unless some of the minute and microscopic infusorial bodies there living be regarded as plants.

CHAPTER XIV.

On the Geology of Lycia and its borders.

THE part of Asia Minor, of the geology of which we are about to give some account, extends over two degrees of longitude and one of latitude. It is chiefly occupied by a series of alpine plains and mountain ridges, broken up by four great valleys which open out seawards. These are, the valley of the Xanthus, watered by the famous river of that name; the valley of Kassabar, of which the gorge of the river Dembra is the outlet; the narrow valley of the river Arycandus; and the valley of Karditch, drained by the Allegheer Tchai. The two last open into the plain of Phineka.

The first of these valleys isolates the mountain mass of Cragus, the two principal summits of which rise to above six thousand five hundred feet. At the head of the valley of the Xanthus is the moun-

tain mass of the Lycian Taurus, the peaks of which are above seven thousand feet high. This walls off the great mountain table-land of Asia Minor. The eastern boundary of the Xanthus valley is the great mountain mass of Massicytus, composed of Ak dagh, ten thousand feet high; Soo-soos dagh, between eight and nine thousand feet; and some lesser summits, walling in a series of mountain plains or "yailahs," (that is, cool summer retreats,) as they are called by the inhabitants. These yailahs are more or less basin-shaped valleys of various extent, and have no outlets for the streams which water them. The rivers pour into caverns among the precipitous cliffs which form their sides. The yailahs are well cultivated, and are the summer resorts of the Turks and Urooks. They vary in elevation from two to six thousand feet. From their forms, and the manner in which they are walled in by the scaglia, the strata of that rock usually dipping from their centres, they may be regarded as valleys of elevation. The probable epoch of their origin will be seen hereafter. The valleys of Arycanda and Karditch are bounded by the two great mountain masses of Bay dagh, and of Taktalu; the latter being the ancient Mount

Solyma, and is continuous with the chain of Mount Climax, which terminates Lycia on the side of Pamphylia.

The great valleys enumerated constitute Lycia Proper, or Maritime Lycia. The yailahs between the Lycian Taurus and Bay dagh, bounded on the north by the highlands of Pisidia, formed the ancient Milyas: the country beyond, and separated from Milyas by the Lycian Taurus, constituted the ancient Cabalia.

The rock which forms the greater part of these tracts of country is the scaglia, or Apennine limestone of southern geologists, the great bounding rock of the Mediterranean basin. In Lycia no older sedimentary formation is visible; and the peaks of the highest mountains, ten thousand feet high, as well as the outlines of the sea-shore, are formed of this limestone, which it is customary among geologists to refer to the cretaceous æra. Its usual aspect is that of a cream-coloured compact limestone, often well adapted for purposes of sculpture, as may be seen by referring to the Lycian marbles in the British Museum. In many places it presents a brecciated structure, and, towards Caria, often appears as a grey gritty stone, the weathered surfaces of

which are drilled and excavated with those curious perforations and cavities so often seen on the exposed parts of limestone rocks, and referred by some, we think erroneously, to the action of marine animals on a coast line.

In the eastern part of Lycia this limestone is often veined, and traversed by flinty or cherty layers and concretions. In Milyas, and in the district of Karditch, the scaglia degenerates into a soft chalky limestone; in some places closely resembling chalk, in others scarcely to be distinguished mineralogically from the fresh-water tertiary marl. Near Lake Caralitis the harder and softer beds of the scaglia are inter-stratified.

The stratification of the scaglia is in some places very distinct, in others very obscure. The strata dip in every possible direction, and at all angles. Generally speaking, however, the dip of the beds is from the axis of the mountain chains, or rather platforms. Thus, at the Pamphylian side of the mountains the dip is usually eastwards; at the Carian, westwards. In places the strata are much contorted; and in the more disturbed portions of Mount Cragus, among the Seven Capes, the contortions of beds are such as to rival in complexity any we have ever seen in palæozoic slates.

Fossils are extremely scarce in the Lycian scaglia. Near Cydna, at the entrance of the Xanthian plain, nummulites occur not uncommonly. We met with them also at Cyanæ, near Gendever; and at Armootlee, on the plain of Almalee. At the last-named place Pectens accompanied them; and, in the brecciated scaglia of the acropolis rock of Gendever, were some fine corals of the genus Astræa. At Cyanæ they are accompanied by hippurites. In the soft chalky limestone of Milyas a Pecten occurred, apparently identical with that at Almali. Unfortunately, it happened that the localities at which we found these indications of organic remains were all places where circumstances did not permit of a stay, and more careful search.

Bordering the valley of the Xanthus, the valleys towards Phaselis, and the alpine plains or yailahs, are strata of greenish sandstone and shale, sometimes of considerable thickness, and apparently conformable with the scaglia upon which they lie. They resemble the "macigno" of Italy. Traces of vegetable impressions, and fucoidal markings, are the only evidences they afford of the presence of organic remains. We have left

these beds uncoloured on the map, considering them as probably forming part of the cretaceous system. At Eski Hissar, near Almalee, are hills of coarse green gravelly sandstone, which, though bearing some resemblance to the beds just described, are possibly of a different age. They abound in nummulites, but these are not of the same species with such as are found in the scaglia. The grains of gravel, of which this coarse sandstone is made up, are limestone and serpentine. The stratification is indistinct. Towards Almalee the gravelly character of these beds disappears, and they appear as white marl, chalky limestone, or a soft green sandstone, in which we could detect no fossils.

Whatever may be the true age of the deposits just mentioned, other strata occur, resting on the scaglia, of undoubted tertiary date. These are both marine and fresh-water, but the former are comparatively scarce. They are not synchronic, but successive in time of deposition; the marine being the more ancient.

Marine tertiaries were met with at four localities in Lycia: viz. at Saaret, near Antiphellus; at Gendever, by the plain of Kassabar; at Armootlee, in the alpine plain of Almalee;

and near Arsa, on the heights walling the valley of the Xanthus. In all these fossils were found, and they appear to be all of the same age.

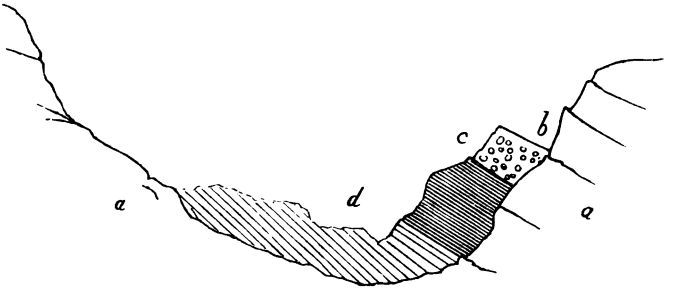


Diagram of the Valley of Saaret,—*a*, the scaglia ; *b*, ancient sea-cliff ; *c*, tertiary conglomerate ; *d*, tertiary marls with marine fossils.

The first of these localities, Saaret, is a narrow mountain valley near the coast, elevated two thousand five hundred feet above the sea. It runs N. and S., and opens into other valleys connected with that of Kassabar. Its sides are rocky and precipitous, and are formed of the scaglia, in some places compact, in others brecciated. The dip of the scaglia on the western side is evident, and is about 30°. The centre of this valley is filled by a tertiary deposit, in places abounding in fossils, all of which are marine. A stream cuts through the tertiary, displaying a good section, where

the beds are seen dipping at an angle of 50° to the west. The uppermost portion consists of a bed of conglomerate, the pebbles in which are limestone and serpentine. The inclined cliff of scaglia, against which this conglomerate abuts, is much water-worn and perforated by borers. Beneath the conglomerate are sandy marls and shales, about forty feet in thickness, containing marine shells. These rest upon dark laminated clays and marls, containing fossils in considerable quantity. The width of the part of the valley occupied by the tertiary is half a mile.

Thirty-four species of mollusca were collected in these beds, mostly in very good preservation. Of these, twelve appear to be identical with, or very closely allied to, Bourdeaux species. Three or four are Italian species, described by Brocchi, and not known in the French miocene. Two are identical with Touraine fossils in Mr. Lyell's collection. Three have been recognized by Signor Michelotti as Italian miocene species. One is a Paris-basin shell, not known higher up in the series. Four of the species, identical with Bourdeaux forms, are supposed analogues of Indian Ocean shells. The living analogue of one of the fossils (a *Pleurotoma*) identified

with a Touraine species, has lately been brought from New Guinea by Mr. Hinds. On the whole, we are inclined to regard this Lycian tertiary as of miocene age, synchronic with the formations of Bourdeaux and of Touraine, and with the miocene tertiaries of Italy.

The following species of fossil testacea were collected by us in the Saaret beds:

Dentalium, very near, if not identical with, the living *Dentalium dentalis*.

Dentalium, very near, if not identical with, *Dentalium entalis*.

Bulla.

Natica, identical with the Bourdeaux fossil called *Natica canrena* by Basterot.

Natica olla, of Marcel de Serres, a living Mediterranean species.

Natica, a third species.

Turritella, very near *Turritella proto* of Basterot.

Turritella spirata of Brocchi.

Conus deperditus of Brugiere.

Oliva.

Ancillaria obsoleta of Brocchi.

Voluta, apparently a variety of *Voluta rarispina*, a Bourdeaux fossil, but differs in having four plaits on columella.

Mitra, very near *M. plicatilis* of Brocchi.

Cancellaria calcarata, Brocchi.

Columbella—Fusus politus of Bronn, or *Nassa columbelloides* of Brocchi. Identical with a Touraine fossil.

Terebra plicaria, Lam.

Terebra pertusa, var. β. Lamark ?

Cerithium, identified by Signor Michelotti with *Cerithium granulosum* of Bonelli.

Chenopus, a fragment.

Eburna ?

Nassa cancellarioides, Basterot, var. ? The spire in our specimens is longer in proportion to the body whorl than in Bourdeaux examples.

Nassa, identified by Signor Michelotti with *Buccinum turbinellus* of Bonelli.

Ranella, identified by Signor Michelotti with the Italian fossil, named *Ranella marginata.*

Fusus, new ?

Pleurotoma, identical with Bourdeaux specimens in the Geological Society's collection labelled "*P. ramosum ;*" but which do not agree with Basterot's figure.

Pleurotoma, agreeing with specimens sent as *P. denticula* of Basterot, but not with his figure.

Pleurotoma rotata of Brocchi.

Pleurotoma scalata, Deshayes ?

Pleurotoma terebra of Basterot.

Venus casinoides of Basterot ?

Cardium edule.

Cardium, an undetermined species, and fragments of two other bivalves.

The second locality at which we found marine tertiaries was Gendever, the site of the ancient Candyba, at the west side of the valley of Kassabar, and elevated two thousand seven hundred feet above the level of the sea. At the base of the acropolis rock, which is composed of

brecciated scaglia, are a few highly inclined beds of white and grey marl of small extent, but containing marine fossils, of the same species with many of those found at Saaret, the more littoral forms being absent. An exploration of the country between Saaret and Gendever would probably shew a connection between the beds.

At Armootlee, on the southern extremity of the plain of Almalee, six thousand feet above the sea-level, are beds of hard grey shale abounding in fragments of marine shells. The presence of determinable portions of two or three species leads us to refer these beds to the same formation with those of Saaret and Gendever. The Armootlee shales extend into the ravines through which there is a pass to the valley of Kassabar, opening out near Gendever, a circumstance which favours the notion of their connection.

On descending into the valley of the Xanthus from Arsa, an ancient site which we discovered above the ravine through which the Mangertchy flows, we passed over a narrow strip of marine tertiary, resting upon the sides of Mount Massicytus, at an elevation of between two and three thousand feet above the sea. The beds, as far as could be made out, were inclined at a high

angle, and dipped to the west. The fossils, which a hasty search enabled us to collect, proved identical with species found at Saaret and Gendever.

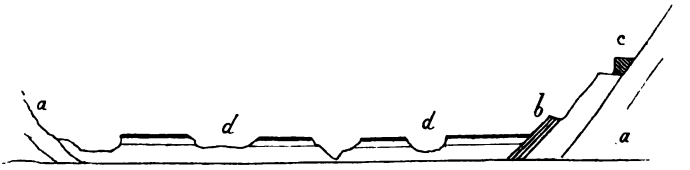
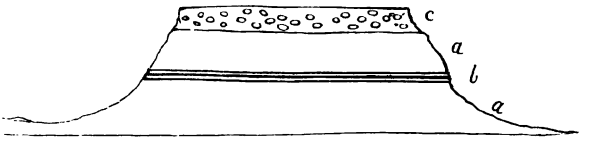


Diagram representing a section of the Valley of the Xanthus,—*a*,*a*, the scaglia ; *b*, green sandstones or macigno ; *c*, marine tertiary terraces near Arsa ; *d*, fresh-water tertiary marls capped by conglomerate.

The fresh-water tertiaries of Lycia are much more extensive, and form an important feature in the aspect of many parts of the country. They are greatly developed in the valley of the Xanthus, in the valley of Kassabar, in that of Arycanda, and in the great Cibyratic plain, and the neighbouring ravines of the Lycian Taurus. There are also traces of their presence in other valleys and plains, both those of the low country, and those which form the yailahs or mountain valleys.

In the valley of the Xanthus the fresh-water tertiary is of great extent, and consists of beds of white marl, layers of yellowish limestone, pisolite and conglomerates. In many places, as

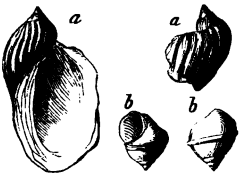
at Minara, it is cut up into isolated hills, rising from two to three hundred feet above the plain,



Hill of fresh-water tertiary opposite the Village of Minara,—*a,a*, marls with *Paludinæ* and *Limneus adelina*; *b*, pisolitic beds; *c*, conglomerate forming a hard cap.

and consisting of marls capped by flat tables of conglomerate or limestone. At the sides of the valley, and near the entrances of ravines, the conglomerate beds are very thick and extensive, and the marls are deficient; but towards the centre the marls predominate, and often contain nodules of menilite. In the limestone beds imperfect casts of a Limneus, resembling *L. longiscatus*, and of a *Planorbis* occur; but the best-preserved fossils are found in a few localities in the marl, and consist of two remarkable shells, a *Limneus* and a *Paludina*, the latter often occurring in considerable numbers. The former is a known but extinct species, which has been described and figured by M. Cantraine in the Brussels Transactions, under the name of *Adelina elegans*. He received his specimen from Italy,

but was not acquainted with its precise locality. The *Paludina* is new.



a, Limneus Adelina. *b*, Paludina Cibyratica.

The same *Paludina* occurs in great numbers in similar fresh-water marls between Tremeely and Cibyra, and in the beds bordering the Cibyratic plain, which therefore may be regarded as synchronic with those of the basin of the Xanthus. The country in which these beds occur, is elevated three thousand five hundred feet above the level of the sea, and is cut off from the valley of the Xanthus by the high ridges of the Lycian Taurus. Up the mountain ravines, on the north side, the fresh-water beds ramify. In the marls of these ravines, shells of *Unio*, and *Planorbis*, and traces of *Melania* and *Cylas*, occur but imperfect; also many impressions of plants. The associated conglomerates are formed of pebbles of scaglia and of serpentine, intermingled. The stratification of the tertiaries, of both the

highland and lowland basins, is horizontal towards the middle, inclined at the sides.

The great valley of Kassabar is occupied by marls exactly similar to those of the valley of the Xanthus, and of great thickness. In these, however, we could find no fossils, but there can be little doubt of their fresh-water origin. Similar deposits fill the valley of Arycanda, which opens into the plain of Phineka. In the yailah of Seydeleer, (six thousand feet,) there are beds of conglomerate, formed of rolled pebbles of limestone and serpentine, skirting the sides of the plain. These are probably also remains of a water tertiary.

The presence of both marine and fresh-water tertiaries in the two great valleys of Xanthus and Kassabar, gives us a clue to their relative age, although there is unfortunately no evidence of superposition. The great inclination of the marine strata, as compared with the undisturbed and horizontal stratification of those of fresh-water origin, warrants us in regarding the former as the more ancient. From the character of the fossils in the Lycian fresh-water tertiaries, we are inclined to consider them as synchronic with the fresh-water tertiary of the island of Cos, which

forms the wall of a marine newer pliocene formation. They must then be of an epoch intermediate between the period of deposition of the Touraine and Bourdeaux miocene beds—which, we have seen, was probably the epoch of the Lycian marine tertiary,—and that of the Rhodian and Sicilian beds, referred to the newer pliocene æra. Consequently they are newer than the fresh-water tertiaries of the gulf of Smyrna, which have been determined to be of the eocene period; they are probably synchronic with the sub-appennine beds or older pliocene. The discovery of the true locality in Italy of the *Limneus adelina* will go far to show the correctness of this conjecture.

Rocks of igneous origin are not unfrequent in Lycia, and their presence is evidently connected with the disturbed state of the mountain masses. Around the gulf of Macri, the ancient Glaucus Sinus, hills of schistose serpentine abound, rising up amidst the scaglia, which, in many places, is seen to rest distinctly upon the igneous rock. The limestone does not appear in the least altered at the point of contact. The serpentine hills are of rounded outlines, and at a distance are easily distinguished from the neigh-

bouring limestone hills, by colour as well as form, the decomposed surface of the rock assuming a pink or purple tint. The south side of the bay of Macri, much of the country around Dædala, the hills east of Cadyanda, bounding the plain of Macri, and many hills in the upper part of the valley of the Xanthus, are formed of this serpentine, which is possibly more ancient than the scaglia, and may have have been only a secondary agent of a deep-seated disturbing force. This rock extends through Caria as far as Marmorice.

The mountain passes between Balbura, Œnoanda and Tremeely in the Cibyratis, are for the most part also composed of serpentine. The rock here is not so schistose, very shining, and steatitic in appearance, of a vivid green, or bright red colour, and often passing in mineral character from common to precious serpentine. It is evidently a cause of disturbance of the scaglia, isolated masses of which are borne up upon it, and in places the limestone beds are much contorted. Not far from Tanger, and near the Gul Hissar, forming the eastern boundary of part of the Cibyratic plain, are hills of serpentine, apparently of the same date with that of Balbura. Also in the immediate neighbour-

hood of Cibyra itself, where they rise through, but do not disturb the fresh-water tertiaries. The iron-works, which anciently made Cibyra the Birmingham of Asia Minor, were supplied from ores of iron oxides, resembling the Elba ore. These abound in the igneous rocks of the district. They are now neglected.

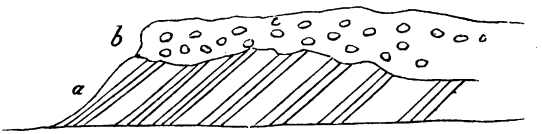
Near Adratchan, not far from the ruins of Olympus, a number of rounded serpentine hills rise among the limestone, and some of them bear up masses of that rock. At the junction of one of these masses of scaglia with the serpentine, is the Yanar, famous as the Chimæra of the ancients, rediscovered in modern times by Captain Beaufort. It is nothing more than a stream of inflammable gas issuing from a crevice, such as is seen in several places among the Appennines. The serpentine immediately round the flame is burnt and ashy, but this is only for a foot or two, the immediate neighbourhood of the Yanar presenting the same aspect it wore in the days of Seneca, who writes "Laeta itaque regio est et herbida, nil flammis adurentibus." Such is the Chimæra—

. . . . flammis que armata chimæra*—

* Virgil, Æ. vi. 288.

deprived of all its terrors. It is still, however, visited as a lion by both Greeks and Turks, who make use of its classic flames to cook kabobs for their dinners.

The country around Taktalu, the ancient Mount Solyma, a peak of scaglia, rising seven thousand feet above the sea, is much disturbed by igneous rocks, apparently of different ages. Near Phaselis are hills of serpentine resembling those at the Yanar-dagh. A little farther up the country, at the western base of Mount Solyma, the igneous rocks appear to be of more recent origin, and are mostly greenstone, which is in places porphyritic and contains included fragments of the limestone, through which it bursts. The trap here bears



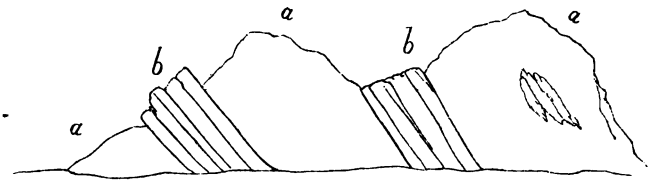
a, beds of shale included in trap, and cupped by (*b*) conglomerates.

up masses of a conglomerate containing pebbles of serpentine and limestone, and in places of a more ancient conglomerate, in which the serpentine is not present. This last appears to be a member of the sandstones and shales which are

conformable with the scaglia. Phaselis itself is built upon a raised platform of conglomerate, capping a hill of wacke. To the east of Phaselis, between Tekrova and the mountain pass through which the army of Alexander made its way into Pamphylia, are some remarkable hills of trap and greenstone, forming a circle round a flat plain, in the midst of which tower two great black rocks of trap, the conspicuous appearance of which from the sea is noticed by Captain Beaufort in his work on Karamania. The whole of this country around Mount Solyma deserves a careful exploration and study.

Trap-rocks of later date than the serpentines are met with in other parts of Lycia besides the country just described, and usually take the form of an amygdaloid, bearing a most striking resemblance to the amygdaloid of the south-east of Scotland. At the eastern extremity of the plain of Phineka, among the ruins of Gagæ, this rock breaks up through the limestones and shales, causing much disturbance; and on the road from thence to Olympus, we passed over a dike of amygdaloid, containing fragments of both limestone and serpentine, the rocks through which it penetrated. This is also the case at Saharajik,

at the head of the district of Kardjitch, where the beds of shale are thrown up vertically, and the serpentine is burst through by protruding masses of amygdaloid. The shales at the point of contact are of a deep red colour, and very crumbling. The same occurs near Geordenna. At Tchandeer there is a good section, showing the disturbance of the limestone by the trap which bursts up between the beds of the former, and includes large masses of it.



a, Amygdaloid, including beds of limestone (*b*) at Tchandeer.

In the west of Lycia there are few traces of such recent irruptions; but near Capac, in the Seven Capes, there are dikes of igneous rock, which disturb the limestone, and convert it into a white and semicrystalline marble.

Reviewing the geological features of Lycia, the following considerations occur to us respecting their history in time.

The first epoch indicated is that of the formation of the scaglia, which was probably deposited as very fine sediment in a deep sea. This we infer from the mineral character of the rock, its uniformity, the extreme scarcity of fossils in it; and when organic remains are present, those being mostly foraminifera, such as the nummulites, especially such species as, from their thin flat wafer-like forms and large size, were not adapted for shallow water. The uppermost beds of the scaglia are generally brecchiated, and in those we find the larger organic remains, indicating a lesser depth. This scaglia is usually referred to the Cretaceous æra; but judging from the singular assemblage of fossils found in some parts of it, as at Mount Lebanon, and from its great thickness, extent, and uniformity of mineral character, it is not improbable that it was a formation, the deposition of which went on without interruption in the depths of a great ocean during the whole of the secondary and cretaceous epochs.

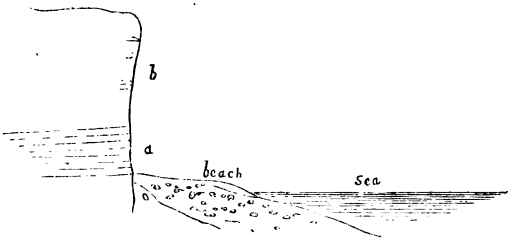
The history of the sandy beds which rest upon the scaglia is more difficult to understand, unless we suppose a considerable and sudden change of level of the sea-bed previous to their deposi-

tion, and to the conversion of the cretaceous sea into land, which we must suppose to have been the case before its depression to form the bed of the miocene sea, in which the marine tertiaries of Lycia were deposited. At this time we have certain evidence that the higher peaks and ranges of the Lycian Taurus and Massicytus were above water. The peculiar forms of the flat basin-like yailah plains are probably derived from this epoch. The elevation of the miocene marks the epoch of greatest disturbance. The position of the marine tertiary beds, and the forms of the scaglia mountains indicate the intensity of the disturbing forces. From two to six thousand feet of the Massicytus was raised above water, and the forms of the mountain summits must have undergone material change. The next great event was the formation of the great lakes, in which the fresh-water tertiaries were deposited. The violent nature of the change which preceded their formation is plainly indicated by the manner in which they are found resting directly on the scaglia, in valleys whence the sea-beds which preceded them were entirely swept away, except a few terraces high among the new-formed mountains.

The draining of these lakes, the thickness of the deposits formed in which indicate the long and tranquil period of their existence, was effected without any great disturbance of their beds, though considerable barriers must have been destroyed. The formation of the great gorge of the Dembra, the breaking up of the country at the mouth of the Xanthus, and of the Arycanda valley, were events probably referrible to this period. This was probably the epoch of the eruption of the Amygdaloid in the east of Lycia.

The great plain of Pamphylia, which bounds Lycia to the east, is formed of travertine. The rivers pouring out of the caverns at the base of the Lycian and Isaurian ranges of the Taurus come forth from their subterranean courses charged with carbonate of lime, and are continually adding to the Pamphylian plain. They build up natural aqueducts of limestone, and, after flowing for a time on these elevated beds, burst their walls and take a new course. Consequently it is very difficult to reconcile the accounts of this district, as transmitted to us by ancient authors, with its present aspect, and the distribution of the streams which water it. By

the sea-side, the travertine forms steep cliffs, from twenty to eighty feet high. At various distances inland, there is a repetition of heights, resembling the line of these cliffs. We found the base of one of these cliffs near Adalia to consist of a marly sandstone, apparently of a different origin from the super-imposed travertine. Eight feet of it was exposed. It had much the aspect of a tertiary deposit, and may be an undisturbed marine tertiary, on which this great tract of travertine rests.



b, the travertine resting on (*a*) beds of marly sandstone, near Adalia.

What are called petrified beaches form a remarkable feature of many parts of the coast of Lycia. The waters, charged with carbonate of lime, draining through the accumulation of pebbles on the shores, cement them together into a hard rock or conglomerate. The aspect of the

beach remains the same, and the incautious boatman, unaware of his danger, may destroy his craft, by running it up against these deceptive shingles.

In places, great accumulations of sand are changing the character of the line of coast. Thus the port of the ancient city of Patara has been closed up, and totally destroyed by sand, and most of the ruins of the city, with part of the neighbouring pine-forest, completely buried.

These changes are probably connected with the changes of level which are continually going on along this coast. Sir Charles Fellows has noticed the indications of oscillations of level, exhibited by a large sarcophagus which stands in the water in the bay of Macri, the site of the ancient city of Termessus. This sarcophagus, which must have originally been erected on dry land, is bored by marine animals to a third of its height, indicating that the ground on which it stands has been depressed below water, considerably more than it is at present, and that it is now probably in progress of rising.

Many such instances are seen among the ruined cities by the shore. Caunus, which was a seaport town in the time of Strabo, is now

two miles inland, and its harbour has become a fresh-water lake, from whence the waters have a fall towards the sea. The position of the buildings on the side of the ancient port indicates that this change has been caused by the rise of the land.

The alluvial plains of Xanthus, Phineka, Myra and Macri, have increased considerably in thickness of soil, since the time when the cities on those plains were flourishing. In this way numerous remains of antiquity and works of art are doubtless imbedded. An indication of the amount of increase of the plain is seen at Xanthus, where a tomb, cut on an isolated rock by the river side, and which must have been originally at some height above the stream, has now only its pediment above water.

In many mountain valleys of the Taurus are great accumulations of unstratified earth, gravel, and masses of rock, resembling the till of our country. Many of these are of very recent origin, being landslips caused by the earthquakes which almost annually convulse this country. We saw some which had occurred only two years before, and in which the trees still remained imbedded. The steep mountain sides,

from which they had fallen away, presented bare and smooth surfaces of rock, scratched and furrowed by the blocks borne down during the slip. Nowhere in the Lycian Taurus could we detect evidence of glacial action, all apparent cases being referrible to the causes just mentioned.

A study of the formations now in progress on the coast of Lycia cannot fail, on account of the variety of the former, and the depth of the latter, to be instructive to the geologist. Careful notes were made with this view in the gulf of Macri, during the survey of that classic arm of the sea—the Glaucus Sinus of the ancients—by Mr. Hoskyn, acting under the orders of Captain Graves. The sounding-lead and the dredge were actively employed during more than two months in this region. The results, so far as geology is concerned, may be concisely stated as follows:—

The sides of the gulf are formed by steep ridges of mountains and hills; its central termination by a wide and alluvial plain. The deep and steep-sided ravines of the rocky limestone mountains are prolonged into the sea. Down these ravines, during the rainy season,

rush impetuous torrents, carrying with them innumerable fragments of rock, to form beds of conglomerate beneath the waters, similar to those upheaved in like situations on several parts of the coast, and especially near the little harbour of Simbolu below Leveesy. There the upheaved beds of conglomerate are interrupted or irregularly inter-stratified with beds of sand and mud, varying in thickness. As the torrents are charged with sand and mud, as well as fragments of rock, and as these floods are intermittent, similar beds must now be in progress of deposition. The thickness, fineness, and extent of such beds, will differ according to the season of the year, and the length of the season during which they are deposited. The great mass of fine mud and sand will be carried out to sea, and deposited beyond the conglomerate, the former being carried farthest. The termination of the beds will usually be inclined at an angle varying in different localities. As the nature and abundance of the marine animals depend not only upon the depth, but also upon the mineral character of the sea-bed, various kinds of marine animals will become imbedded in the various deposits.

The parts of the Lycian coast on which such conglomerates are in process of formation are, owing to the disturbing influences by which those beds are produced, by no means prolific in marine animals near the shore, though such localities, when long undisturbed, are very favourable to their multiplication, owing to the shelter and protection afforded by the broken fragments of rock. In either case, however, few organic remains are likely to be found in such beds when upheaved, unless they be of massive corals, now very rare within the Mediterranean region.

In some places these conglomerates and brecchias are forming at great depths. Near Cape Angistro, the mountains impending over the gulf are breaking up and crumbling away, without the agency of running water, and their fragments are falling in great quantities into very deep water, even as deep as one hundred fathoms, where, doubtless, they are now forming masses of brecchia. Similar brecchias are forming at some distance from the land, owing to the gradual destruction of sub-marine pinnacles of rock. There is a case of this kind at the entrance of the north side of the gulph, near Cape Artemi-

sium, where a pinnacle of rock rises from a depth of a hundred and forty fathoms, until it reaches within thirty fathoms of the surface, deep water surrounding it. On the other hand, conglomerates of rounded pebbles, with associated beds of sand, are forming nearly on a level with the sea, in consequence of the gradual destruction of serpentine islands in the gulph. In these, wood is becoming imbedded in considerable quantity. Such insulated conglomerate beds, or beaches, have usually a little lagoon in their centres.

Brecchiated beds accumulating around the bases of rocky submarine peaks rising in deep water at a distance from land, are more likely to contain imbedded organic remains than such as are formed along shore. Round their bases will accumulate beds of gravel, shells and corals belonging to various zones of depth. Such is the case, as we found by dredging, round the peak of rock in the neighbourhood of Cape Artemisium already mentioned.

Owing to the peculiar form of many of the ravines along the coast, their entrances beneath the water may become choked up with a bar of conglomerate, banks of pebbles becoming rapidly consolidated. Then the deep basin inside

becomes partially isolated, and the deep-sea-creatures living in it, owing to the change of conditions, are killed off. This was found to be the case with the little basin of Simbolu, itself thirty fathoms deep, whilst the entrance was not so much as seven. Here the centre was filled with mud, in which we found imbedded masses of wood, and even quantities of leaves, borne into the basin by torrents during the rainy season.

The mud of such basins, and that of confined and shallow parts of the bay and gulph, is invariably dark-coloured in the Lycian sea. It might be termed blue mud; in most places it is very prolific in organic contents, but where the walls of the bay are almost entirely composed of serpentine—as in several places on the coast of Caria—there is a remarkable deficiency of animal contents, especially of testaceous mollusca. The muddy deposit from the deep sea is usually, almost invariably, of a pale yellow colour, and when dried nearly white. The region of this yellow mud is the sea bed below eighty fathoms, more commonly below one hundred. From that depth, down as deep as we were enabled by means of the dredge to explore,

we found an uniform bottom of fine sediment in the form of yellow mud, inhabited through great part by an uniform assemblage of marine animals, mostly delicate, fragile, and colourless forms, which became fewer and fewer both as to number of individuals, and number of species, as the sea became deeper and deeper.

Tracks of sand are forming near the shore, and off the mouths of the larger rivers. This is especially the case on exposed coasts, as in the instance of that part of the Lycian shore where the Xanthus empties itself into the sea. There the sea is shallow for some distance and for a considerable breadth, the bottom being formed of a tract of sand. Such a bottom is not favourable to abundance or variety of marine life, and testacea are by no means plentiful in such places. The formation of this sandy sea-bed has led to the destruction of the port of Patara, and to the burial of its buildings and fields in hills of blown sand. In these hills much wood is becoming imbedded; also land shells. In many parts of the Ægean, as in Cerigotto, such masses of blown sand become consolidated into hard rock, and contain vegetable remains, associated with the shells of existing terrestrial mollusca. In

the island alluded to, the extinction of a species of *Helix*, still living in the neighbouring isles, has taken place in consequence.

The filling-up of sub-marine valleys and ravines with conglomerates and sedimentary deposits gives rise in the end to the formation of plains, which when upheaved form valleys such as those presented by the plains of Macri, Xanthus and Phineka. That of Macri is in continual process of increase, and as we have seen that it has been submitted to frequent and recent changes of level, both through elevation and depression, it affords evidences of phenomena well worthy of the study of geologists. Here we find that the blocking up of the river which flows through the plain, owing to shingle beds and sand heaps, accumulated when the wind is from the south, causes the formation of lagoons and marshes. The water in these is at first salt, but if the bar endure sufficiently long, may become fresh and remain so, and, in the end, be peopled with fresh-water mollusca. At Macri we find such lagoons in all their conditions, filled with myriads of *Cerithium mammillatum*, a mollusk capable of enduring, without apparent inconvenience, great changes in the quality of its

native element. When the lagoons become very fresh, *Neritina*, *Melania* and *Melanopsis*, with *Limneus* and *Cyclas*, join its company, but perish on the destruction of the barrier and the invasion of salt-water, bringing with it marine creatures to take their places. The *Cerithium*, however, survives. Not so in case of a change of level; if there be elevation, though but very slight, the lagoon will be drained, and the shell-fish inhabiting it perish; if depression, the *Cerithium* itself is so littoral in its habits, that a very inconsiderable sinking of the bed of the lagoon would bring it into a region of depth unfitted for its existence. In the former case, the whole fauna would be cut off; in the latter, many of the marine associates of the *Cerithium* would continue to live, and be joined by a numerous assemblage of new companions. A new elevation would cause a new change, and if the *Cerithium* had continued to live in the neighbourhood, fresh lagoons for its residence might be formed, occupying hollows in a marine formation, charged with the organic remains of its destroyed contemporaries.

Such changes have taken place in the neighbourhood of Macri within the historical period,

and a section of the plain would doubtless show many alternations of marine, brackish, and fresh-water strata, similar to those upon which we have been speculating. Small as may be the area, and limited as the time under consideration, they are not unworthy of our earnest inquiry. The history of life upon our globe, the in-coming of new species, and the perishing of old ones, is only the history of elevations, depressions, and temporary conditions, varied by an occasional convulsion, differing only in degree from those which have determined the zoo-geological features of the coast of Lycia.

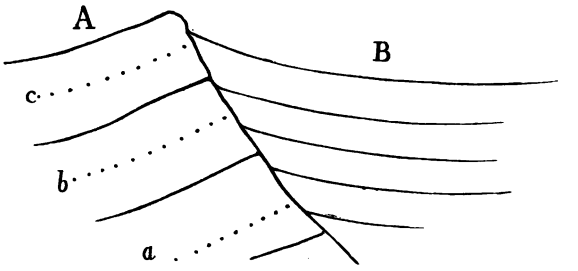
When describing the fresh-water tertiaries of the valley of the Xanthus, we referred to similar tertiaries in the island of Cos. These were visited by us, on our voyage from Rhodes to rejoin the Beacon, after leaving Lycia. They present phenomena of striking interest and importance, and as they bear on the question of the possibility of a transmutation of species, we cannot do better than append a notice of them to this account of the geology of Lycia.

The fresh-water tertiaries of Cos are of considerable extent. They appear to belong to the

same geological period with those of the valleys of Xanthus and Cibyra. We have seen that those Lycian fresh-water beds were of date posterior to the meiocene marine formations of the same region. Thus we get an ante-date; and in Cos we get a distinct after-date, for there the same beds, or what were probably beds of the same age, form the walls of a tertiary basin of later date. This basin consists of a well-defined series of marine deposits, containing numerous newer pliocene fossils, identical with those of Rhodes and of Sicily. The Cos fresh-water beds, and those of Lycia, may therefore be regarded as older pliocene at latest.

The fossils in the newer pliocene marine formation are extremely numerous, both as to species and individuals. They consist of such testacea as now live in the neighbouring sea, mingled with others extinct, or known only as inhabitants of the Red Sea and Indian Ocean. Many species, too, now very rare in the neighbouring seas, such as *Nassa semistriata*, and *Siliquaria anguina*, are abundant in the fossil state, whilst others now plentiful in the Ægean, are very scarce in the tertiaries. Such shells as the *Phorus*, and the *Niso*, conspicuously represent the extinct forms.

In the fresh-water strata, against which the marine newer pliocene beds abut unconformably, there are also numerous and well-preserved



Tertiaries of Cos. A, freshwater beds, *a*, *b*, c successive series of fossiliferous zones. B, Marine Newer Pliocene beds.

fossils: shells of *Paludina*, *Neritina*, *Melanopsis*, *Melania*, *Valvata*, *Unio*, *Cyclas*, and *Planorbis*, occur, marking the nature of the deposit. With them, teeth of a *Cyprinus* were found, also leaves and stems of plants, and in the uppermost stratum, shells of the common cockle.

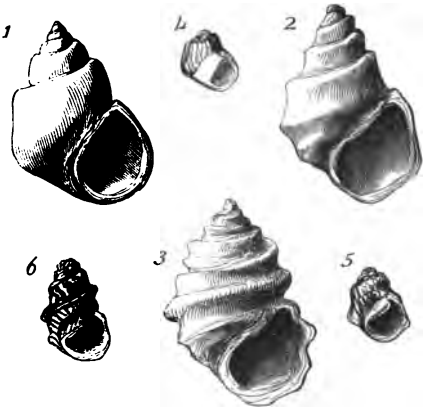
The great interest of this formation depends on certain appearances presented by the mollusca of the genera *Paludina*, *Melanopsis*, and *Neritina*, found in great quantities in several parts of it. They occur distributed in distinct horizons, throughout the vertical thickness of the section. These horizons form three series, each of which is characterised by a peculiar form of *Paludina*

and of *Neritina*, not present in the other two, and in the two lower horizons, there are two species of *Melanopsis* peculiar to each.

So very different are the several fossils of one zone from those of another, that at first examination, we appear to have before us very distinct and well marked species, and that each series of horizons was characterised by *Paludinæ*, *Neritinæ*, and *Melanopsides*, peculiar to itself, and representative of those inhabiting the other divisions. This would be a very startling phenomenon to occur within so limited an area. If the successive species be considered distinct, we must regard them as mutually representative, and hold that a succession of creations and extinctions took place, in this probably limited basin, during a brief geological period,—or else that a transmutation of species took place.

A careful study of the forms in question, and an inquiry into the modes and capacity of variation of species in the genera to which they belong, and among their allies, have convinced us, however, that these curious changes of form may be accounted for otherwise, and that in the successive *Paludinæ*, *Neritinæ*, &c. we have before us only the same species assuming pro-

tean variations. By reference to the figures, it will be seen that the *Paludinæ* and *Neritinæ*,



1, *Paludina* of lowest horizon; 2, of the second, and 3 of the uppermost zone. 4, 5, and 6, successive forms of *Neritina*.

of the first or lowest zone, have smooth and unwrinkled shells; that those of the second have their shells belted by a strong fold or corrugation, whilst those of the uppermost zone are deeply sulcated, and surrounded by strong spiral ridges.

Such changes of form take place among *Littorinæ* and *Neritinæ*, even now, in places where alternations of fresh and salt-water affect the mollusca, and in brackish-water localities. There are phenomena in the Cos beds, which warrant

us in referring the remarkable peculiarities of the fossils therein found to a similar cause. That an influx of salt-water changed the character of the basin in which they lived towards the close of its existence, is evident from the presence of the *Cardium edule* in its uppermost part. That some such cause had previously been in action is probable from the fact, that the pulmoniferous testacea found in this formation are confined to the lowest series of horizons. One of the authors has elsewhere shown that no species of mollusk can live for any length of time on the same ground. A change of ground is necessary for its prosperity; otherwise it dies off. But—as the fry of even the most sedentary testacea are active creatures of a different form, organized for swimming,—when all the adult animals upon a ground are destroyed, their descendants may survive their destruction and replace them, providing the ground be sufficiently changed during the interval.

Now these two facts, first of the nature and causes of the variations among such testacea as present such curious changes of form in the Cos fresh-water beds, and second, of the necessity of a change of ground for the well-being of a

species, and the manner in which, owing to the nature of the larva, such change may be effected on the same spot, have led us to propose the following solution of the Cos problem.

The lowest series of horizons were deposited in the basin when it was purely a fresh-water one, and in it we found the *Paludinæ*, &c., in their normal condition, associated with ordinary fresh-water mollusca. These latter are killed off by an influx of salt-water, sufficient to render the basin slightly brackish. This influx takes place at a time when the mollusks of the uppermost horizon in the lowest series have exhausted their ground, whilst at the same time their fry are swimming in the manner of Pteropods through the waters.

The adults are destroyed, but their descendants survive, so affected, however, by the change in the condition of the element, as to assume a new form, and develope themselves under the aspect of distinct species. A second revolution of the same kind brings about a third, still more remarkable and apparently equally sudden, change, and the continued inroads of the sea at length revolutionise the character of the fauna, introduce marine testacea in the place of the

freshwater species, and destroy the latter altogether.

Such an explanation is consistent with what we now know of the modes of variation among fresh-water mollusca, and accounts sufficiently for a very remarkable palæontological phenomenon, which at first glance appeared to afford strong support to the notion of a transmutation of species in time.

The preceding notes are offered as contributions towards the geology of Asia Minor. For some years past the structure of western Asia has furnished the subjects of several interesting memoirs and notices. The most active and accurate labourers in the field have been our distinguished countrymen, Mr. W. J. Hamilton and Mr. H. E. Strickland; their joint papers may be found in the Transactions of the Geological Society; and in the valuable "Travels" of the first-named gentleman, an interesting account of the geology of the country in the line of his journeys is given. In Mr. Ainsworth's Travels are also many notices of the structure of the districts he explored; and Mr. Warrington Smyth has lately (in the Quarterly Journal of the Geo-

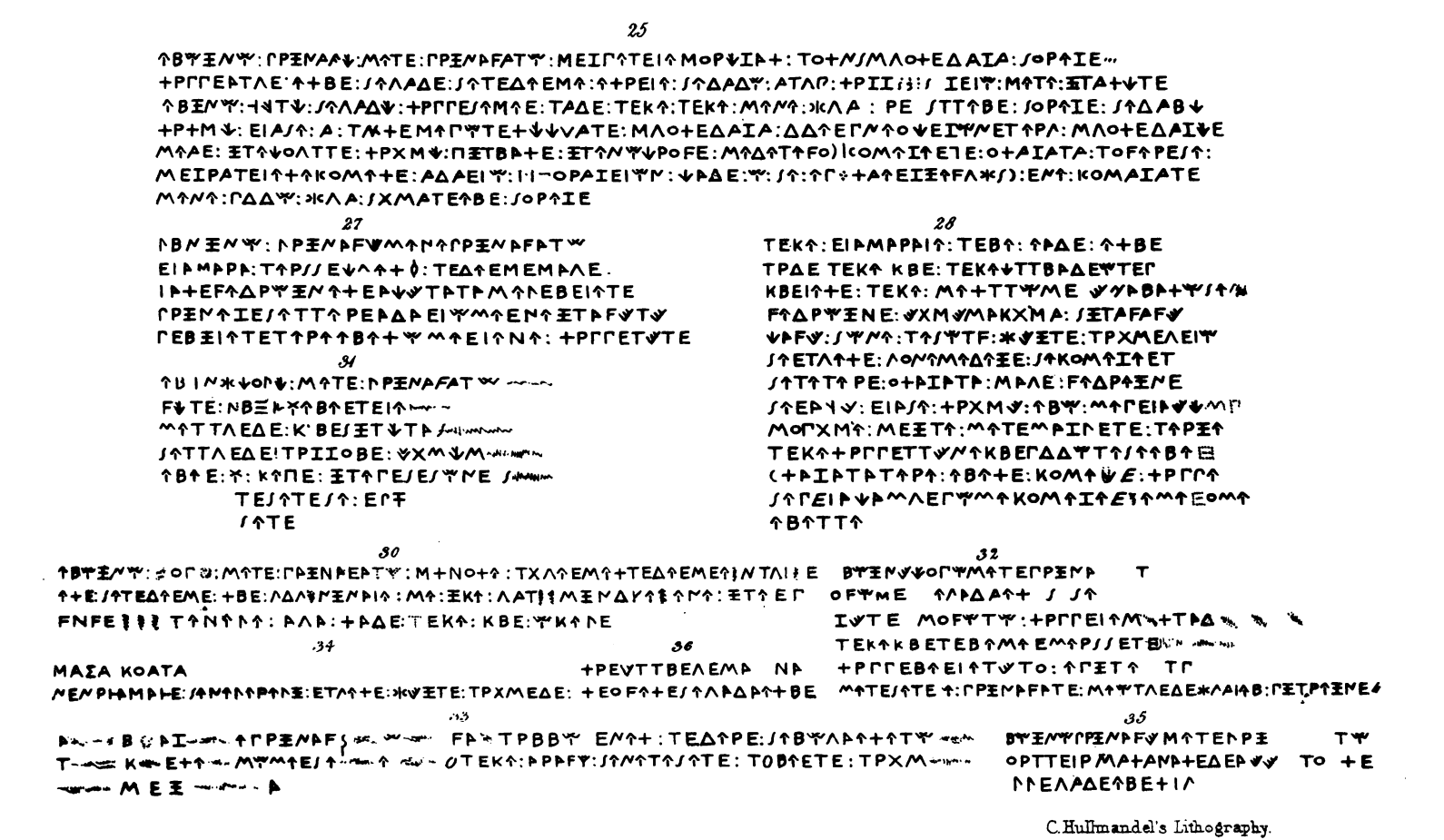
logical Society) offered fresh contributions to our knowledge of the geology of the Taurus.

From these various and extended researches it would appear that the great mass of Western Asia is composed of the Scaglia, or Alpine, or Appenine Limestone, as it has variously been called: that this formation, usually considered as secondary and of the cretaceous epoch, but regarding the age of which we have taken a more extended view, is chiefly developed in the southern parts of the country; that in the north it is replaced by mica slates and saccharine marbles, similar to those of the Cyclades and parts of Greece, considered by some geologists (as Mr. Strickland) as altered rocks of an age long anterior to the time of formation of the scaglia; by others (with whom Mr. Hamilton is inclined to side) as possibly only the scaglia itself altered, an opinion to which, after having seen the aspect of these rocks in Paros, Naxia, and the neighbouring isles, we are inclined to subscribe. In Central and Northern Asia Minor are igneous districts of several ages, the history of which have been admirably made out by the authors quoted. In many of these the lavas are of date apparently long posterior to any volcanic rocks met with by us in the coun-

tries we visited. In the south-west of Asia Minor the prevailing igneous rock is serpentine, in the north-western districts various forms of trachyte. Marine tertiaries of the same age with those of Rhodes and Cos,—newer pliocene,—have been observed on the coast of the Troad and bordering the Dardanelles. They were first noticed by Olivier. We have examined fossils from these tertiaries. But no marine tertiaries of more ancient origin have been described from this country besides those discovered by us occupying valleys in the Lycian Taurus, and probably of miocene age. Fresh-water tertiaries are very generally distributed in Asia Minor, and are beautifully seen around the gulph of Smyrna.* Some of these appear to be miocene, others of older date and apparently formations of the eocene epoch. Perhaps the most remarkable fact connected with the latter is that in many places they form the coast-line, bounding a sea which rapidly deepens to more than one hundred fathoms. The straits between Scio and the mainland are excavated in these fresh-water tertiaries.

* See Lieutenant Spratt's paper on the geology of the Gulph of Smyrna in the Quarterly Journal of the Geological Society, vol. i.

Very recently the existence of rocks of Palæozoic age in the neighbourhood of Mount Ararat has been made known. M. de Verneuil has announced to the Geological Society of France, that Professor Abich of Dorpat, commissioned by the Emperor of Russia to investigate the geology of the trans-caucasian countries, has discovered on the northern flanks of the great Ararat, in the valley of Aras, ancient limestones containing such fossils as *Spirifer speciosus* and *ostiolatus*, *Catenipora escharoides*, and species of *Orthis*, *Lingula*, and *Favosites*. This discovery will probably afford a key to the history of the older rocks of Asia Minor, and we may now look forward to the eventual and not far distant construction of a complete geological map of that classic and interesting region.



APPENDIX I.

ON CERTAIN

LYCIAN INSCRIPTIONS,

COPIED BY

THE REV. E. T. DANIELL, EDWARD FORBES, ESQ. AND LIEUTENANT SPRATT, R.N.

By DANIEL SHARPE, Esq.

(READ BEFORE THE PHILOLOGICAL SOCIETY.)

APPENDIX I.

THE inscriptions which form the subject of the present paper were copied in Lycia by Mr. Forbes, Lieutenant Spratt, and the late Rev. E. T. Daniell, and it was the intention of the latter to have published them, had he returned to England. The memorandum-books containing them were sent, in compliance with Mr. Daniell's last wishes, to Mr. Forbes and Lieutenant Spratt, and were placed at the disposal of the author by these gentlemen.

The inscriptions have been copied without alteration, from the original books. The greater part of them are entirely new, but some have been added, although published before by Sir C. Fellows, because the present copies appear to be more correct than the former ones. Fresh copies of other inscriptions already published might have been added, but as the differences in

the versions are slight, they are omitted. There are also two new inscriptions copied by Sir C. Fellows, Nos. 10 and 19.

In the version of the inscriptions given in the text, an endeavour has been made to restore the true reading as far as practicable. This is easier than might be expected, owing to the frequent recurrence of the same words and phrases in different inscriptions, which being funereal have a great sameness of expression; and it is by taking advantage of the repetition of similar sentences differently modified, that the author arrives at the translations which have been given of some portions. The bilingual inscriptions furnish the meanings of a certain number of Lycian words: where several of these are found in another sentence in company with only one or two others, the context usually gives a probable meaning for the new words; this probability is increased every time that the meaning so acquired gives a consistent sense to a fresh sentence, and it becomes almost a certainty if it produces a rational translation in every instance. This method is strictly analogous to that followed in reading an unknown cypher, where the accuracy of the decypherer is

estimated by the harmony of the result which he produces.

The Greek funereal inscriptions, which abound in Lycia, frequently give an indirect assistance towards understanding those in the earlier language. They run in certain set phrases, which we naturally look for, and frequently find, in the Lycian inscriptions. The change of language in Lycia appears to have been gradual, and the alteration in manners to have been equally slow.

Before entering upon the inscriptions, it will be necessary to say a few words on the alphabet, as both corrections and additions must be made to the details which have already been laid before the public.

In his memoir on the Lycian inscriptions, inserted in the fourth volume of the "Zeitschrift für die Kunde des Morgenlandes," Professor Grotefend proposes a reading for the Lycian vowels widely differing from that which the author had adopted, and in which, with the exception of one alteration, he cannot agree. The learned professor has been misled by the bilingual inscription from Antiphellus, which is incomplete in our copies. Not observing that it wants the end of each of the first

lines, he has tried to find the Lycian corresponding to Ικτασλα (the owner of the tomb) in the name of that person's father, and to bring these names together, he has changed the value of several of the Lycian letters. But all the reasoning built upon this foundation falls to the ground when it is shown that the name corresponding to *Iktasla* is lost at the end of the first line of the inscription.

The correction proposed by the professor, in which the author concurs, consists in regarding 𐊫𐊫 as equivalent to the Greek Ω, which materially simplifies the alphabet. We may carry this farther, and consider 𐊬𐊬 as also equivalent to Ω. The difference between these letters when single is so slight as not easily to be appreciated, but when doubled they are constantly interchanged.

The author had been led into the error of considering 𐊬 as nearly equivalent to the two last-mentioned letters by Sir C. Fellows's version of the bilingual inscription at Limyra, but the present more correct copy destroys the source of the mistake.

The principal difficulty in the Lycian alphabet still consists in the letters related to *U*, which,

without being identical, express modifications of sound too numerous for us to appreciate. Disregarding variations in form, which may be attributed to the whims of the sculptors, there are five distinct letters, two of which are also used double, making seven changes, which it is difficult to express by more than five, u, ŭ, ū, w, and ō. It is probable that they represented a greater number of sounds than these, but we cannot hope to distinguish them more accurately until we know the relative dates of the different Lycian monuments; as we have inscriptions extending over a long period, during which the language was undergoing considerable changes, from which these letters suffered more than any others. The following is the explanation offered of them:—

and are so near each other, that it is difficult to distinguish between them, although they are not absolutely identical, and we are forced to regard both as U short. Of the two, the first is probably the shorter in sound.* In all the common words in which either of these letters occurs, there seems a preference for one

* It has been distinguished by a mark *ŭ*, the other being represented by *u* without any distinguishing sign.

or the other of them; yet in every word they are occasionally interchanged.

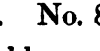
+ is U long, and also V, if that consonant is to be recognised at all.

B and ⌖ are W, usually consonants, but occasionally long vowels. In some words the one letter is invariably used, in others they are interchanged.

BB and ⌖⌖ seem exact equivalents to the Greek Ω, and when so doubled appear identical.

In two inscriptions, Nos. 26 and 31, the letter ⌖ is used instead of ψ in the word *ēwuinu*. If the copies are correct, this shows great affinity between the letters; but two instances, set against all other cases, will not prove their identity. Unfortunately the copies of both inscriptions are faulty and imperfect, so that we cannot rely upon them.

The author must add two letters to the alphabet, which are both of rare occurrence, and were overlooked before. y is found on each side of the great obelisk at Xanthus, less than twenty times in all, and in less than ten distinct words. It is doubtful if it occurs in any other inscription, as in the few cases in which we find it, it seems to be an imperfect copy of some

other letter. It is also found on two coins, Nos. 8 and 11, of Sir C. Fellows's Plate 37, both of which are of great antiquity. No. 8 is badly engraved; its legend is probably  , which occurs several times on the obelisk, viz. S.W.5,25?, N.W.45,53?, N.E.38,50? The author's former reference of this coin to *Gagæ* cannot stand, but it is difficult to say to what town it should be referred. A letter of similar form to this has been found in several alphabets, and has been variously explained. It is found in Phrygian inscriptions, on coins of Cilicia, and on Phœnician coins and inscriptions. In the latter Gesenius calls it *Zade*, and its power is perhaps not very far from the English pronunciation of J.

occurs eight times on the north-east and north-west sides of the Xanthus obelisk, and is not found elsewhere. With so little to guide us, there is no hope of fixing its value; but looking for assistance to the same source as in the last instance, we find in Gesenius a Phœnician letter with a considerable resemblance in form, which that author regards as *Samech*, a sibilant of which the exact sound is still a matter of some doubt.

It is remarkable that these two letters should be found in one inscription at Xanthus, and not on any other of the numerous monuments of which we have the records before us; and three hypotheses present themselves in explanation of this extraordinary fact: — 1st, that these two letters are foreign to the language, and only used in the names of foreign towns and persons; 2nd, that the Xanthus inscription is in the dialect of a different tribe from the other inscriptions; 3rd, that it is of a different date from the other inscriptions, and that the language changed somewhat in the interval.

The first conjecture is negatived, as regards one of the letters, by its occurrence on coins of the true Lycian type: and it thus becomes improbable of the other letter. The second supposition is improbable, because this obelisk is in the same town as many other inscriptions, and it contains many words which are found in the other inscriptions. The last seems the most probable explanation. We know that Greek civilization was gradually making way in Asia Minor before the Macedonian conquest, and Sir C. Fellows's researches show us that Greek art gradually drove the Asiatic style of

sculpture out of Lycia. We have also evidence in these inscriptions that the Lycian language underwent considerable changes, even in its common forms of declension, before it was finally supplanted by the all-conquering Greek. We may therefore be disposed to consider all marked variations of dialect as evidences of difference of date; and if this is allowed, the Xanthus inscription must be regarded as the earliest yet brought from Lycia.

The following table represents the Lycian alphabet:—

Common Forms.	Value.
	ā *long*
	ă *short*
	ē *long*
	ĕ *short*
	ī *long, or* y
	ĭ *short*
	u
	ŭ *short*
	ū *long, and perhaps* v
	ŏ *short*
	w *consonant or vowel*
	ō *long*
	G
	D
	Z
	K

Common Forms.	Value.
Λ	L
MM	M
N	N
ΓΛ	P
P	R
S	S
T	T
F	F
X	Ch
Y	J *probably*
M	*Unknown*
○ :○:	*Stops*
III . O⁻ . III⁻	*Numerals*

The inscriptions are placed in the order in which the language may be most easily studied, beginning with those which have a Greek translation accompanying them. Those are next taken in which the construction is the simplest, and the number of words already known predominates; the rest are placed so that the difficulties may be presented to view step by step.

No. 1. *Bilingual Inscription at Limyra.*

Of this two copies have been published; the first was made by Mr. Cockerell, and is given in Mr. Walpole's Travels; the other was pub-

lished by Sir C. Fellows. The present copy has been made with great care, and is nearly complete, so that, with the exception of the names, it may be restored without any risk; it confirms many of the corrections which had been previously suggested by the author. The letter + is twice omitted in the third line, at the termination of the genitive name, and at the beginning of the word *ūrppe*. The Greek translation is so literal, that this short inscription is of great importance, and the present copy is a valuable addition to our stock; but as the author has analysed it at great length before, he merely gives the restoration and translation of it:—

ēwēeya	: ērafazeya	: mēte	prinafatŭ	:	sedēreya	:
το	μνημα	τοδε	εποιησατο		Σιδαριος	
This	*tomb*	*which*	*made*		*Sidarios*	

pē . . . nēū : tedēeme : ūrppe ētle ēŭwe sē lade :

Παρμενοντος	υιος		εαυτῳ	και τῃ	γυναικι
Parmeno's	*son*	*for*	*himself*	*and*	*wife*

ēūwe sē tedēeme p . . . ē . . . lēyē

και	υιῳ	Πυβιαλη	
his and	*son*	*Pubiale.*	

No. 2. *Bilingual Inscription at Leveesy.*

This was copied by Mr. Daniell and given by

him to Sir C. Fellows, from whom the author received it. It is not in Mr. Daniell's memorandum-book, nor does it appear to have been copied by any other person. The inscription is nearly perfect, and forms a most important addition to our knowledge of the language.

There appear to have been two flaws in the stone, of less width than at present, before the letters were cut; for the spaces are much greater than is required for the missing letters. The same circumstance occurs in several other inscriptions. Where the defects in the stone prevented the artists from getting an even surface, they appear to have left blank spaces, and continued the lines further on.

The following is the best version of the inscription which presents itself:—

ēwŭinŭ itatu *m*ēnē prinafutŭ *p*olēnīda molleūēsēū se
τουτο το μνημα εργασαντο Απολλωνιδες Μολλισιος και
This tomb which made Apollonides son of Mollisus and

*l*apara polēnīdau poreūemētēū prinēzeyēue ūrppe
Λαπαρας Απολλωνιδου Πυριματιος οικειοι επι ταις
Laparas son of Apollonides Porimatis's servants for

lada ēpttēūē sē tedēemē sē ey ē tesē
γυναιξιν ταις εαυτων και τοις εγγονοις και αν τις
wives their and children and if anyone

retī .. deteẽ itatu ẽwẽũe mẽ ey ẽ . . . . . oẽte ponamachche :
αδικησῃ το μνημα τουτο εξωλεα και πανωλεα ειη
violates *tomb* *this*

aladaũade : ada : 4
αυτῳ παντων
let him pay a fine adas . . .

In the first paragraph the Greek and Lycian correspond almost word for word, but in the conclusion they differ entirely; the Greek version denounces curses upon the violator of the tomb, while the Lycian threatens him with a fine. This will be better seen in analysing the whole in detail.

ẽwŭĭnŭ, the neuter of the demonstrative *this*.

itatu, a *tomb* or *monument*, in the Greek μνημα. It is apparently the passive participle of a verb signifying *to bury*, of which there are several tenses used in other inscriptions (see the Appendix to Sir C. Fellows's Lycia, p. 482). The author at first thought the initial short vowel the augment, and connected the verb with τιθημι; but as the same vowel occurs in the participle, it is probably part of the form of the verb. Professor Grotefend gave another turn to the sentences in which the verb *itatu*, &c. occurs, by translating it *transgress*; but the inscription

before us proves that the true translation is *to bury*.

mēnē, a declinable demonstrative particle.

prinafutŭ, in the Greek εργασαντο, *they made*, or *caused to be made*, if the Lycian verbs had a middle voice. This is the first instance in which we are sure of having a verb in the plural; it is therefore very unfortunate that there is a flaw, which makes its termination uncertain. The same tense in the singular is of frequent occurrence, written *prinafatŭ*.

Polēnīda, in the genitive *Polēnīdaū*, in the Greek Απολλωνιδης. There are several peculiarities of Lycian orthography shown in the changes which this name undergoes in its translation from the Greek. Both the initial vowel and the terminal consonant are dropped in the Lycian, in which language a great majority of the names begin with a consonant, and all without exception end in a vowel. There is also a remarkable change of the ω into ē in the middle of the word. Strabo gives an instance of an analogous change in the Asiatic name of Νωρα, which he says is now called Νηροασσος. In addition to this, one *l* is omitted, and the name is so changed, that if we had not the Greek form in

the same inscription, we should never have suspected the connexion between them.

Molleũēsēũ, in the Greek Μολλισιος. In changing this name into Lycian, the short second syllable is drawn out into two long syllables, an alteration similar to that which we find in the same inscription in the name *Porimatis*.

Dapafa is the next name, if we trust the Lycian version, but the Greek has it Λαπαραϛ. There is very little reason for preferring either *L* or *D* at the beginning of the word, but the *f* in the last syllable must be wrongly copied for *r*; the name must be either *Dapara* or *Lapara*. Here again the Lycian drops the terminal consonant.

Poreũemētēũ. There is a gap in the latter part of this word, which may only be owing to a flaw in the stone, or there may have been another syllable in the word. The Greek form Πυριματιος makes it appear complete, but on the inscription No. 7 we find the nominative name *Poreũemētete*, and in No. 26, which is too imperfect to be of much assistance, *Poreũemēewa*. In one of the unpublished Greek inscriptions from Limyra we find mention of κυριον Ποριματιν; it is not likely that all these inscriptions relate to the same person; probably

the name *Porimatis* reoccurs in several generations of one of the leading families of the country. The second syllable of the Greek name is drawn out into two syllables in the Lycian, in a manner analogous to the instance already pointed out with Μολλισιος. The letter *ẽ* which follows this name is omitted, being apparently copied instead of the usual stops.

prinẽzeyẽũe. This word has been restored from another inscription in which it occurs, the No. 9 of Sir C. Fellows's Plate 36. The dative singular *prinẽze* occurs several times. The author formerly translated this word *beloved*, relying on the context; but its meaning is now ascertained by the Greek translation οικειοι, *domestic servants;* perhaps in this instance *stewards.* In several of the Greek funereal inscriptions copied by Mr. Daniell the οικειοι are mentioned, or tombs are stated to be built for them by their masters; but it is a proof of the importance of the Lord Porimatis, that his servants provided themselves with a tomb of this order.

ũrppe, the preposition *for*, in the Greek επι. This word is nearly lost in the crack across the stone; but, as it occurs in almost every inscription, there is no danger in restoring it.

lada, the dative plural *wives*, in the Greek γυναιξιν. The dative singular *lade* occurs frequently. In No. 5, Plate 36, of Sir C. Fellows, the nominative singular is *lada*; in No. 13 the dative singular is *ladu*; and in No. 18 *ladue* is the dative plural. These variations of termination make one suspect that the language has an instrumental case as well as a dative.

ēpttēūē, the Greek ταις εαυτων. This appears to be a close translation; the word is the genitive plural of *themselves*. We have the genitive singular *ēpttēūe* in the upper inscription at p. 225 of Sir C. Fellows's "Asia Minor;" and in plate 36, No. 5, of his "Lycia," we have another form of the word, *ēpttē*. That inscription is very imperfect, and Mr. Daniell's copy of it does not enable us to read it with any certainty, but it probably runs *ūrppe atla ēpptē, for themselves;* the latter word being used adjectively, the phrase will thus be analogous to the common form *ūrppe atle ēūwe, for himself*. The nominative singular is probably *ēpttē*.

sē tedēemē, and children, words of constant recurrence.

sē ey ē. This was at first translated *whoever* (Appendix, p. 482), by deriving the meaning

from the context of several inscriptions in which it occurs; but we now find it rendered *και αν τις*, and in the bilingual inscription at Antiphellus *εαν δε τις*, which must be taken as the meaning; and, although in no instance is it divided by stops, we must consider it as three words. It must be observed, that the stops : which separate the words in the Lycian inscriptions are not placed between words in very close relationship to each other; thus the conjunctions are seldom separated by the stops from the following word, and frequently not from the preceding one. This practice will be referred to again. Of the three words here found together, two had been already recognised: *sẽ* is the conjunction *and*; *ẽ* had been shown to be a pronoun (p. 472), and must now be rendered *anyone*; and the remaining conjunction *ẽy* may be compared to the Greek *ει*, *if*. We thus find the exact translation to be, *and if anyone*.

We ought to find in the next word the translation of *αδικησῃ*, but there is ground for suspicion that we have more than one word in the Lycian, and there seems to be at least one letter wanting at the end of the line. We do not find the same combination of letters in any other inscrip-

tion, and in the Antiphellus inscription which contains the words εαν δε τις αδικησῃ, the corresponding Lycian words are *sẽ ey ẽ teẽde.* We have here *teẽ* preceding *itatu;* but if we take *teẽ* for the verb *violate,* we have no employment for the preceding words. We must therefore leave this in doubt.

itatu ẽwẽũe answers to the το μνημα τουτο of the Greek; *itatu* has lost its last letter in the crack across the stone. It occurs in the first line of the inscription with the same meaning, *tomb: ẽwẽũe* is the preposition *this;* it is related to the demonstratives *ẽwũinũ, ẽwẽeya, ẽwẽũũ,* &c.

In the rest of the inscription we can trace no connection between the Greek and the Lycian. In place of the curses denounced in the Greek against the violator of the tomb, the Lycian threatens him with a fine; and, owing to an unfortunate gap in the third line, we cannot complete the words.

The next two words must be left untranslated at present: *aladaũade,* or as it occurs elsewhere *adadaũale,* the author had translated *let him pay a fine;* and every inscription in which it occurs justifies this meaning, as it is always followed by

ada and a numeral; *ada* is without doubt a *coin* or *sum of money;* we have no clue to the value of the final numeral.

No. 3. *Bilingual Inscription at Antiphellus.*

The present inscription was published by Professor Grotefend in the paper already mentioned (Zeitschrift für die Kunde des Morgenlandes, vol. iv.). From his translation of it, the author is obliged to dissent in several important particulars. The professor's copy was rceeived from M. Raoul Rochette, and had passed through several hands before reaching him; and we need not therefore be surprised that slight errors should have crept into it on the way. It is interesting to have a fresh copy to compare with it, and the author has also had the opportunity of comparing a copy which M. Raoul Rochette obligingly sent to Sir C. Fellows.

The two copies agree in the main points, and only differ in a few letters; both agree in the great inequality in length of the different lines, the first line of the Lycian having twenty-six letters in the last copy, and the last line forty letters. There is good reason to believe that

the first lines are incomplete, and perhaps that the others are also; but as there is a great difference in the length of the two Greek lines, it is not easy to say how much is wanting.

Professor Grotefend has not perceived that the inscription is imperfect, and has endeavoured to fit the Lycian and Greek words together in a very unsatisfactory manner, having altered the alphabet to find the name *Iktasla* in the first word of the second line of the Lycian, which is in reality the name of Iktasla's father. The attention of Sir C. Fellows has been called to this inscription, and he may possibly succeed in discovering the remainder; in the meantime we must make the best we can of it in its present state.

The Greek runs thus:—

Ικτασλα Αντιφελλιτης τουτ(ο) το μνημα ηργασετο αυτῳ τε και γυναικι και τεκνοις : εαν δε τις αδικησῃ η αγορασῃ το μνημα ηλητω αυτον επιτν. Ψ.

The only words open to doubt are the last three, which the professor explains as ηλιτε αυτον επιτ(ιμιο)ν +, which is not confirmed by our fresh copy; yet the meaning he has thus given to the sentence is in every probability correct, *that whoever violates or sells the tomb is to be fined.*

The Lycian, taken line by line, is as follows:—

ẽwŭinŭ prinufo mẽte *p*rinafatŭ
•gtta : ũlaũ : tedẽeme : ũrppe lade : ẽũwe
sẽ tedẽemẽ : ẽũweyẽ : sẽ ey ẽ teẽde : tekẽ : mŭtŭ :
mẽnẽ wastto : ŭne : wlaũe ẽweyẽũe sẽ eẽdfefẽũ itẽze.

In every other Lycian funereal inscription we find the name of the owner of the tomb; and, as it occurs in the Greek translation, it is extremely improbable that it should be omitted in this single instance. We may conclude therefore that it is lost at the end of the first line, and we have room in the same line for the equivalent of Αντιφελλιτης. This word could hardly be expected in its Greek form, but in the older name of *Habessus*, given by Stephanus Byzantinus. In the first word of the second line, Professor Grotefend finds, following his copy, *Uttăilăi*, giving a different value to all the vowels. He considers the words *Uttaila's son* to be the paraphrase of the *Iktasla* of the Greek, and regards the names *Uttaila* and *Iktasla* as identical, the father and son having the same name. In the present copy there are three variations in this word: 1st, there is an imperfect letter at the beginning, which is also clearly given in M. Raoul Ro-

chette's copy, so that we may consider that it certainly exists in the original; 2ndly, the second letter is *g* instead of *u*; 3rdly, there are stops in the middle of the word. If these stops are correct, we have a name which, after taking off the genitive termination, will be reduced to three letters, which is highly improbable, as the great length of the proper names is quite a marked feature of the language. It is much more probable that the stops indicate the place of a letter which has been defaced by time, and that the word had originally ten letters. If we follow Professor Grotefend's conjecture, that the father and son had both the same name, we may fill up the blank at the beginning of the word by *i*, and that in the middle by *s*, and omitting the genitive ending, we shall thus obtain *Igttasūla* for the name, which is sufficiently near to the Greek form. There is however no reason for forcing the two names together, as it is very unusual on these tombs to find the father and son with the same name.

There is no such blank in the next part of the sentence as to make it indispensable that we should add anything at the end of the second line, the words *ūrppe lade ēūwe sē tedēemē, for his*

wife and children, making a complete sense; but the shortness of this line makes it probable that something is wanting there also, and we accordingly find that εαυτῳ has no representative in the Lycian part of the inscription. By adding at the end of the line the common words *atle ēũwe, himself*, we should fill up the blank space, and bring the Lycian into harmony with the Greek. Professor Grotefend avoids this difficulty by regarding *ũrppe* as the pronoun *himself*, in which the author cannot agree. The professor's translation of the common phrase *ũrppe atle ēũwe* by *sibi personæ suæ*, instead of *pro personâ suâ*, as rendered by the author, appears forced, and is contradicted by the way in which *ũrppe* is used in several inscriptions; while the translation *for* is always consistent with the construction to be expected. Moreover, if this word were a pronoun, we should find it declined, which is not the case.

The last sentence presents more difficulties, which are increased by the doubt whether the lines are complete. Judging merely by the length of the third line, we might imagine that it had contained another word, but we have no clue to it.

sẽ ey ẽ is here translated εαν δε τις, which was analysed under the last inscription. If we adhere as closely as we can to the Greek, which is our safest course, we must connect *teẽde* with αδικησῃ; as the latter word occurs in the bilingual inscription at Leveesy, we look for the same word to answer to it in the Lycian part of that inscription, and there we have *teẽ* preceding the words *this tomb.* The termination *de* is frequently an enclytic: if we regard it so in this instance, there would remain in both inscriptions *teẽ* for the verb *violate,* and to this we have an analogy in the Greek verb δαιω; but then there is no word of a similar form to answer to αγορασῃ. If we drop that verb for the present, we can have no difficulty in translating *tekẽ mŭtŭ* by *this tomb:* the first of the two words is analogous to θηκη and the Latin *theca*; the second is very close to *mŭte,* which we find frequently in the Lycian inscriptions as a demonstrative pronoun.

It is difficult to make anything of the last line, which appears to contain a great deal more than the Greek counterpart. It is to be hoped that we may attain another copy of the inscription, for neither of those yet received is en-

tirely to be relied on, as in the latter part of this line we have combinations of letters which are very unusual.

No. 4. *Fragment of Bilingual Inscription at Tlos.*

The copy of this inscription is too imperfect to have any value; the middle part is entirely lost, and we have only the commencement of the Lycian and the end of the Greek portion, so that we have nothing common to the two. The Lycian must be read *ēwŭinŭ itatŭ mŭte prinafatŭ, this tomb which made;* the name cannot be made out. The Greek probably ends with εαυτῳ και τῃ γυναικι και τοις τεκνοις αυτου. We may hope that some future traveller will make a more perfect copy, as every scrap of the language which is accompanied by a literal translation is of value.

These four are the only true bilingual inscriptions yet brought from Lycia; there are among the other inscriptions several in which either Greek or Latin is found on the same tomb with Lycian, but the two portions have no reference to one another. The Greek or Roman inhabitants appear to have made use of the ancient

tombs, without defacing the original inscriptions. These will be pointed out as they occur.

In endeavouring to elucidate some of the remaining inscriptions, the author proposes to take them in the order in which they may be most readily studied, beginning with the simplest, and placing those together which have most resemblance in the words or construction; so that the simple phrases may lead us on to those which are more difficult to be understood.

No. 5. *At Ghiouristan, the ancient Cyane.*

ēwŭinŭ : prinafu : mŭnē : prinafatŭ : godrēūela : ūrppe lade
This tomb which made Godrewela for wife
ēūwe
his

Below this is a Greek inscription in three lines, relating to the tomb of Jason and Seras, which has no connection with the above. Mr. Daniell adds, "Over the Greek is another Greek inscription, scarcely a word of which is traceable;" and a slight sketch shows the position of the inscriptions on the tomb.

No. 6. *Under the Acropolis of Candyba.*

The inscription is imperfect, but can easily be

restored, with the exception of one letter in the name.

ēwŭinŭ *gopu mēnē* prinafatŭ : gorey*una ūrppe lade ēūwe
This tomb which made Goreyuna for wife his

sē tedēemē
and children

No. 7.

poreūemētete : prinafatē : ma*asaū : tedēeme gopu : ēwŭinŭ
*Poreuemetete made Ma*asa's son tomb this*

ūrppe : atle : ēūwe : sē tedēemē : ēūweyē
for self his and children his

This sentence is differently constructed from the others; to render it intelligible in English, it must be translated, *Poreuemetete, the son of Ma*asa, had this tomb made for himself and his children.*

No. 8. *At Limyra.*

ēwŭinŭ gopo mŭte prinafatŭ
ēsētē . . . . opēsēū atle ēūwe sē lade sē tedēemē

The names cannot be fully made out, and have this peculiarity, that the father's name in the genitive is not followed by the word *son; gopo, a tomb,* has a different termination from its usual form *gopu;* in a few instances we find it written *gopa.*

No. 9. *At Limyra.*

oprēūela : : keroū : tedēeme : ŭnŭ pēreklēūē

We find nearly the same name in an inscription copied at Pinara by Sir C. Fellows ("Lycia," Plate 30, No. 11), *Orēwella* forming *Orēwellaūa* in the dative.

A letter has been altered in the last word to bring it to *Pēreklēūē*, which seems to be the gentile name of *Pēreclē*, a town of which we have several coins. The first found, had lost the first letter, and reading the name as *Ereclē*, the author proposed to refer them to *Heraclea;* but several perfect coins have been since found, which leave no doubt that the name is really *Pēreclē;* one of them is figured in the Appendix to Sir C. Fellows's "Lycia," p. 465, No. 31. Mr. Birch has conjectured that the legend on these coins is the name of Pericles, a king of Lycia mentioned by Theopompus (lib. 12 in Photii Biblioth. cod. 176). But this opinion can hardly be maintained, as all the Lycian coins appear struck in the names of the towns. We shall meet with other names ending in *ūe* or *ūē*, which are probably also gentile forms. The derivatives of *Pēreclē* occur in several inscriptions found at or near

Limyra, and (as we learn from Mr. Forbes) Mr. Daniell concluded in consequence, that it was the original Lycian name of Limyra, a conjecture which appears to be in the highest degree probable.

ŭnŭ is found in a similar phrase in several inscriptions, and although its meaning cannot be fixed with certainty, we cannot be far wrong if we render the last two words *native of Pēreclē*, *citizen of Pēreclē*, *by birth a Pereclean*, or some such expression.

One of the inscriptions, copied by Mr. Cockerell at Kakava, near Limyra, and published (No. 3) in Walpole's Travels, has an analogous phrase. It is nearly perfect, and may be restored thus :—

ēwŭinŭ *p*rinafu mŭt*e* pri*n*afatŭ gaofuneme ūrppe l*a*de ēūwe sē tedēemē ēūweyē ŭnŭ pēreklēū gitafata

The first part is perfectly intelligible, but the last three words furnish considerable trouble, and the last word, *gitafata*, is quite unknown. There are a number of forms resembling this in other inscriptions, *gitafasa*, *gitafataūe*, *gitafatēūe*, *gitawo*, *gitawato*, *gitafatutofe*, &c., from which we may conclude that it belongs to a verb. In the meantime

we can only translate the inscription conjecturally by "Gaofuneme, *a citizen* of Pēreclē, made this tomb for his wife and his children."

No. 10. *On a Sarcophagus-Tomb at Xanthus.*

ēwŭinŭ : prinafu : mŭte prinafatŭ : mērēūe :
kodalaū : gitlaū : tedēeme treya trōaūe : pinataūe :
oūaūe : ūrppe : prinēze : ŭnŭ : gitafata : gērīgēūē

This was copied by Sir C. Fellows. In the above version we have placed the stops after *ūrppe*, in place of the upright stroke in the original. It presents so many points of difference from the usual phraseology of the short inscriptions, that the following remarks are offered with great diffidence.

The name of the owner appears to be *Mērēūe*. Between this and the word *tedēeme* we have two genitives without any conjunction between them. Of this no other instance has been observed. The most probable explanation is, that the first is the name of the father, the second of the grandfather, and that we must translate it, *Mērēūe the son of Kodala the son of Gitla.*

In the second line we seem to have after the word *treya* three gentile names, at least we have three words with the same termination; of which

the first, *trōaũe*, may fairly be taken for the adjective of *Trôas*, the Lycian name of Tlos. It seems probable that in *treya* we have a derivative from the numeral *three*, and that *Mērēũe* describes himself as a citizen of the three towns of Tlos, Pinota and Oua; but we do not find any names in the geographers answering to the last two.

The tomb is made *ũrppe prinēze, for his servant;* but, instead of the servant's name, we have a description that he is a native or citizen of *Gērigē*. This last name is so near the town alluded to at p. 195, as *Gēreja*, that we may perhaps doubt the accuracy of Sir C. Fellows's copy of the last word of the inscription.

No. 11. *Near Armootlee* (*near Limyra*).

gitlap*u*nē : prinafatē : pēreklēũ : maũenaza : ēpitewazaũ tedēeme

The word *maũenaza* does not occur again, but, as it follows the genitive *Pēreklēũ*, we may conjecture that it is the title of an office in the town of Perecle filled by the party named. The inscription will then be, "Gitlapune, *a magistrate* of Perekle, son of Epitewaza, made *this*."

No. 12. *At Candyba.*

oũowẽ ; krōeũawodaũ tedẽme rērtena toũẽs

In several of the Greek inscriptions from Lycia, published by Sir C. Fellows, the numerals δις or B are used either for *grandson*, or to mark a second name. [The references to the inscriptions in which it is so used, will be found in his Index of Greek Words under δις.]

In this inscription *toũẽs* has apparently the same meaning of *twice*, the inscription being either *Ouowẽ the son of Kroeũawoda the grandson of Rērtena;* or *Ouowẽ the son of Kroeũawoda, also called Rērtena.* The absence of the genitive to *Rērtena* makes the latter the more probable translation. We find *toũẽs* used as grandson elsewhere. The lower inscription at p. 225 of the "Journal of a Tour in Asia Minor" has been corrected by Sir C. Fellows, to *Aũōade Pezewedẽũ tedẽeme sẽ Uapdumẽũ toũẽs;* that is, "Aũōade, Pezewedẽ's son and Uapdumẽ's *grandson;*" and in the twenty-sixth line of the south-west side of the obelisk at Xanthus, we have *toũẽs* after a genitive name, in the part of the inscription which appears to give the genealogy of the son of Harpagus. In a very early stage

of these inquiries, Mr. Fox Talbot suggested to Sir C. Fellows, that *toūēs* meant grandson.

We now come to several inscriptions of greater length, and with a more complicated construction. The difficulty of understanding them, increases nearly in a geometrical ratio. Some phrases here and there are selected for elucidation, without attempting to translate whole inscriptions; and the reader will excuse greater liberties of conjecture than have hitherto been taken; but the degree of evidence which there is for each conjecture shall be pointed out scrupulously.

No. 13. *Near Limyra.*

ēwŭinŭ : gopu : mēte : prinafatŭ : zaūama : ddafupartaū
This tomb which made Zaūama Ddafuparta's

tedēeme : mē itēpetute : zaūunu : sē ladu : sē : tedēeme*u* :
son, which he inscribed to Zaūuna and wife and son

ēūw*e* kwe : tekē : te itēpetade : atlaūe : tewē kweyēūe :
his which tomb also he inscribed for himself

tewētē : alaūadete : mēnē : muūue : towēete, &c.

There are two copies of this inscription taken by Mr. Daniell and Mr. Forbes, only differing slightly. Both have been made use of in the above version, only altering *tedēemeg* in the second line into *tedēemeu*, to preserve uniformity

in the declensions, and avoid a termination in *g*, of which there is no other instance.

The first line is in the usual phraseology; but in the second line, instead of the formula previously met with, stating for whom the tomb is intended, we have another expression, *mẽ itẽpetute,* &c., clearly answering a similar purpose. In many Greek inscriptions from Lycia, we find τουτο το μνημα επιγραψε εαυτῳ και, &c., or some similar expression, and these suggest the translation of the word before us to be *inscribed to* or *registered for.* The whole form of these inscriptions shows them to be title-deeds of the tombs, and it is reasonable to expect in them the use of the same formal expressions which we find in the Greek inscriptions at a later period in the same localities.

Mẽitẽpetute and *teitẽpetade* are each written as one word; but it has been already remarked, that many of the smaller words are not separated by stops. Of the verb to which *itẽpetade* belongs, we find many forms in different inscriptions; and in No. 16, which has a phraseology very similar to this, we have *mŭnẽ itẽpetŭte* used in the same manner, so that there can be no doubt that we must consider *mẽ* and *te* as

separate words. *Mē* is related to *mēnē*, *mŭnē*, *mēte* and *mŭte*, all of which are used as pronouns. The meaning required here is *which*. *Te* is often used as an enclytic conjunction, exactly answering to the Greek τε; but here it is joined to the following instead of the preceding word.

The terminations of the next three nouns in *u* after the verb *itēpetute* establish another case in the declension of the nouns. We have in No. 5 (Fellows, pl. 36) *lada* as the nominative; the common phrase, *ūrppe lade sē tedēeme*, and this form *ladu*, supply either the ablative and dative, or the instrumental and dative if we adopt the oriental cases. In No. 25 we have *ladŭ* as a plural after *ūrppe*, and in No. 18 (which is very imperfect and doubtful) *ladue* seems to be used as the dative plural.

The word *kwe*, the second of the third line, reminds us strongly of the relative pronouns in other Indo-European languages; *tekē* has already been translated *tomb* at page 237, and *atlaūe* is a case of *atle*, *self*; these give a reasonable meaning to this short phrase. The rest is still unknown. The word *kweyēūe* is perhaps the dative plural of the relative *kwe*, and

suggests the probability of our finding here some such expression as, *and to whom he may give permission*, which is common in the Greek inscriptions.

No. 14. *At Myra.*

No. 18, Plate 36, *of Sir C. Fellows.*

ēwŭinŭ prinafŭ mēnē prinafatŭ ddawasa sitopēū tedēeme
This tomb which made Ddawasa Sitope's son

ūrpe lade ēūwe sē tedēemē sē ŭkē late ddawasa mēnē
for wife his and children and Ddawasa, which

itēpetute itepatēze sē ladu ēūwe kwe tekē mē enepē
he inscribed to Itepateze and wife his, which tomb

itēpetuto
inscribed

tewē enepē ūlăme tofēto ūlăme mē etofēte tekē tewēe
tomb

itēpetade tekē mēnē etlēūe towēete trămele ūofēdre
he inscribed tomb this for himself Tramele

sē trōas sē muūuĕ ūofēdre
and Tlos and

This inscription was published by Sir. C. Fellows, but the present version is so much better, that it is again published: the cause of the discrepancies is explained by a note in Mr. Daniell's pocket-book:—"It is so high, that one wrote while another dictated the letters." The new

copy has been followed in all but the name Ddawa*wa*sa; the repetition of the syllable *wa* is not in the former copy, nor in the next line, where the name occurs again, and is evidently an error.

The expressions of this inscription resemble those of the preceding, No. 13. Some words have been translated, but the rest must be left in doubt. The two names *Trămele* and *Trōas*, in the latter part, deserve attention. The first is the ancient name of the Lycian people, given by the Greeks as *Tremilæ* or *Termilæ*; the other is the town of *Tlos*. [See Appendix to Fellows's "Lycia," p. 465.]

No. 15. *At Antiphellus.*

This agrees very closely with No. 13, but is so imperfect, that little is to be learnt from it, as without a better copy we can hardly rely upon its accuracy, for which reason it is passed over. It is the tomb of *Edamagzza the son of Oūēreyē*, and the Lycian has no connection whatever with the Latin epitaph above it, placed by *Claudia Regeria Herminia* to the memory of her sister.

No. 16.

There are so many words in this inscription which appear to require correction, and so little that is yet understood, that no transcript of it has been given.

The first short line seems to have been abandoned by the sculptor on account of its incorrectness, and he has begun again in the next line. The same has happened with the inscription No. 14 of Sir C. Fellows's Plate 36.

The beginning of the inscription is clear enough :—

ēwŭenŭ : gopŭ mŭte prinafatŭ : sggotraze mŭnē itepetŭte :
This tomb which made Sggotraze which he inscribed to
sggotraze : sē la*du* : ēūwe sē tedēemes ēūwes
Sggotraze and wife his and children his

We have here a termination in *s* to the dative plural, instead of the lengthening of the last vowel, *tedēemes ēūwes* being used instead of the usual form *tedēemē ēūweyē*. There is only one other inscription, No. 17, which has a similar form. So great a change in the declension of the language makes it probable that these two inscriptions are of a different date from the others; and as the change is an approach to the

Greek form of the dative plural, these two may perhaps be looked upon as the most modern specimens which we have of the language.

The Greek inscription has no reference whatever to the Lycian below it.

No. 17. *Near Armootlee* (*on the plain of Phineka.*)

The orthography of this inscription is so peculiar, that it might be as well to see another copy before we meddle with the greater part of it; but the conclusion must not be altogether passed over, as it adds an important word to our stock.

ēpi tē : ladu : ŭme : sē tedēemes : ŭmes sē mēlēwe sē tedēeme

In several inscriptions *ēpi* appears to be used as the preposition *for* in the place of *ūrppe*. If that is its meaning in the present instance, the next word *tē* must be an article, the two answering to the Greek επι τη. This can only be admitted on the supposition that the language of this inscription is altogether corrupted by intercourse with the Greeks; and this is perhaps too great a change to rest upon such slight evidence. The words *ŭme* and *ŭmes*, found in the connection in which they stand, are without

doubt the singular and plural of the pronoun *your*. They occur nowhere else, as all the other inscriptions appear to run in the third person. We have here again the plural ending in *s*, as in the last inscription, which marks a great approach to the Greek form. The last sentence is therefore, *for your wife and your children, and Mēlēwe and son.*

No. 18. *Near Armootlee.*

This has a good deal of resemblance to the last inscription, but is too imperfect to be of much value in its present state.

No. 19. *At Xanthus; copied by Sir C. Fellows.*

ēwŭīnē *p*rinafo mēnē prinafatŭ eyētroŭlē : ūorttofētēū :
This tomb which made Eyetroule Uorttofete's
fasaza : ūrppe lade sē tedēemē sē ey ē itatētu tēse mite
relation ? for wife and children and if anyone buries herein, &c.
ada :

The above is similar to the inscriptions explained in the Appendix to Sir C. Fellows's "Lycia," pp. 482 and 483. One line is lost at the end, in which a fine is imposed on the transgressor. The only unknown word is *fasaza*, which does not occur elsewhere, and is apparently a term of relationship.

No. 20. *On the ascent to Cadyanda from Hoozoomlee.*

opazeyŭnē : prinafatē ūrppe : prinēze : ēūwe sē ey ē :
Opazeyune made for servant his and if anyone
itatutŭ tasa : meita : mēlēemē sē : adadaūale ada III
buries herein and let him pay a fine adas 3

According to Mr. Forbes, this inscription was copied under some difficulties, and it contains several errors, but none of importance. Its import resembles the last. We find here a new word, *mēlēeme*, which does not occur again, and remains unknown.

No. 21. *At Limyra.*

ēwŭinŭ : gopu mēnē : prinafatŭ : tēworssēle *ezasa*aū :
This tomb which made Teworssele
ddēdelosu : ita : aūizēte . . . ēre se gitawora ŭnŭ : pērekleūē :
Pereklean
gitafata

One letter is wanting at the beginning of each line, which is easily restored in the first and third lines. The second line cannot be much relied on.

The name of *Teworssele* occurs in the inscriptions below the battle-scene published by Sir C. Fellows, p. 207; and as the tomb with this

inscription is immediately below that piece of sculpture, we may conclude that they were erected by the same individual. The first line is in the usual style; the first word of the second line is probably the name of Teworssele's father in the genitive case; the rest of that line is unintelligible. The third line consists of the phrase which is supposed to designate either a *native* or a *citizen of Perecle.*

No. 22. *At Limyra, under the Battle-scene.*

In the copy published by Sir C. Fellows, it was not clear whether this was all to be read together or not; it is evident from the present version that it is to be read in three separate parts; but this assistance is not enough, and the greater part of these short inscriptions is still obscure.

The first phrase is as follows:—

Tēworssēle : prinafatē : losi ppē : ŭte : fazeuē :

The first two words are *Teworssele made;* the last word, *fazeuē*, is probably from *faze*, which we find in the compound *ērafazeya*, a *tomb* or *monument*, and which may have the same meaning in this sentence. *Teworssele* was the name of the owner of the last tomb, No. 21.

The second sentence runs thus :—

Tēworssēle : prinafatē gasawala : ŭkē : ēsē : pereklē : tēwētē : artto ăparu : sē ăparūē : tēluze

Excepting the first two words, which are the same as in the first sentence, and the name of the town *Perekle*, the whole has still to be made out.

The third sentence is very imperfectly preserved, and is quite obscure.

No. 23. *At Armootlee, near Limyra.*

ēsēdēplŭmēyē : mēyadŭ : tēse : meite : afaūae : *g*opa ēūwe
Esedeplume's family ? herein may bury in tomb his
sē enē : ēpi : poitŭ mēe : *af*aūe : tēse : *ad*adaūale
for who buries here let him pay a fine

No. 24. *Near Armootlee.*

ēsēdēplŭmēye : mēyadu : tēse : meite afaūae : gopa ēwēūe :
Esedeplume's family ? herein may bury in tomb of them,
mēe : afaūae tēse : *ad*adaūale :
who buries here let him pay a fine

The close resemblance of these two inscriptions is very remarkable. Of the latter there are two copies, taken by Mr. Daniell and Mr. Forbes ; from the comparison of these with one another and with the other inscription, the version given above is made up.

The first word in each, *Esēdēplŭmēyē*, appears to be a possessive adjective formed from *Esēdēplūme*, which we find in the inscription of Plate 36 of Sir C. Fellows's "Lycia" as the name of the owner of a tomb at Limyra. So, in Nos. 27 and 28, from the name *Eyamara* we have the adjective *Eyamarayē* as a possessive.

mēyadu does not occur again. We get an approach to the meaning of the sentence if we suppose it to mean *family*.

tēse meite and *tēse* have been already translated *herein*, which may do in these sentences, although it does not give us a very neat translation. Professor Grotefend gives another meaning to these words in the memoir already quoted, p. 297. He translates the common phrase,

sē eyē itadu tēse meite,
welcher Frēvel übet hiergegen.

This translation has been overturned by our finding *itatŭ* rendered in Greek by *μνημα*, p. 224; and the inscriptions now under consideration would not bear the meaning which he gives to *tēse meite*.

afaūe is evidently the verb. It is applied both to the owner of the tomb and to the transgressor; its meaning must therefore be *to bury, to*

use, or some word which may be substituted for them.

gopa ēūwe or *gopa ēwēūe* are *his tomb* and *their tomb*; *gopa* occurs frequently as a *tomb*; *ēū*we is *his* or *their*; *ēwēūe*, the genitive plural, *of them*.

sēene ēpi poitŭ must be left as unknown. It is evidently a complete phrase, as No. 24 is perfect without it. In some other inscriptions we have the same phrase, or one which nearly resembles this. In the fourth line of No. 26 it is proposed to restore the same words; and the broken portion of the third line of the bilingual inscription at Leveesy, No. 2, might be filled up *mē eyē ēpi poïēte*. In the lower inscription of p. 225 of Sir C. Fellows we have *peyētŭū*, and below *peytŭ*, which has since been corrected by Sir C. Fellows to *peyētŭ*. It is probable that the word should be *poïētŭ* in the present instance.

adadaūale has been frequently met with as *let him pay a fine*, and it is always followed by numerals; these are here indicated by a contraction.

mēe may be taken for *who*, being probably related to *mē*, *mēnē*, &c., *which*.

In this manner we obtain a conjectural translation of the inscriptions, which must be received for the present with great doubts.

The two Greek words Φοινικος Τυριφ, which occur below the inscription No. 24, appear to have no connection with it.

No. 25. *On a Rock-Tomb at Sura.*

ēwŭinŭ : prinafu : mēte : prinafatŭ : mezpēteyē : moruzaū :
This tomb which made Mezpēteyē Moruza's
toūēs : mloūedaza : sorēze . . .
grandson ? Mlouedaza Sura
ūrppe atle : ēūwe : sē lade : sē tedēemē : ēūweyē : sē
for himself and wife and children his and
ladŭ : atle : ūrzze . . s . zeyŭ : mētē : itatute
wives self tomb
ēwŭinu : ūutu : sē ladu : ūrppe sē mēe : tade tekē : tekē :
this and wives for and who tomb tomb
mēnē : wlaūe : . . . . . sttēwe : sorēze : sē dawu
which Sura
ūrămu : eyasē : aṭlaūe mē pŭte ūuguate : mloūedaza : ddēepnē
themselves Mlouedaza
. o . . gezŭne tērĕ : mloūedazue
to Mlouedaza
mēde : itēgoptte : ūrămu : pitwaūe : itēnŭ grofe : mēdē
tēfo ↄ komēzēete : oūazata : tofēre sē
mezrateyēūē komēūe : adaeyu : ||— orazeyun : gade : ŭ : sē
to Mezrateye
: ēpi a ē ez i ē f p w s ↄ enē : komazate
mēnē : pddŭ : wla : sămate ēwe : sorēze

The preceding inscription is far from being correct throughout: some of the obvious errors are set right, but there are others which can only be mended by another copy; the latter half of the sixth line especially wants revising. There is very little of the inscription yet understood; but there are some points of interest in it which are worth pointing out, of which the principal is connected with the name of the town. It is found at Sura, and the name *Sorēze* occurs three times, at the end of the first and last lines and in the third line. This is probably an inflection of *Sorēzu*, the termination in *ēzu* being the Lycian equivalent of ησσος, which with ασσος and εσσος is so common in the Greek names of the towns of Asia Minor. Of this another instance was pointed out (Appendix, p. 461) in the legend *Pttarazu* of a coin referred to Patara. The first line is marked as incomplete; the word was probably *Sorēzeūe, a native of Sura.*

The owner of the tomb is described as *Mezpēteyē: Moruzaū: toūēs: Mloūedaza.* In the sixth line the name is written *Mezrateyē*, one or the other spelling being incorrect, and *Mloūedaza* occurs again below. Taking *toūēs* as the equivalent of the Greek δις, we have the same doubt

already pointed out at p. 245, whether to translate the phrase *Mezpēteyē the son of Moruza, also called Mlouedaza*, or *Mezpeteye the grandson of Moruza;* in which latter case *Mloūedaza* may be the name of an office in the town of Sura, as has already been conjectured of a word much resembling it in No. 11, *Maūenaza:* in fact, the two words are so close, that we may suspect an error in the spelling of the latter. The former is confirmed by its recurrence.

The word *adaeyŭ* in the sixth line, followed by a numeral, must be connected with the payment of a fine.

The rest of this long inscription must be left in obscurity for the present.

No. 26. *On a Sarcophagus-Tomb at Cyane.*

ēwūinŭ : *faze* : mēnē prin*a*fatŭ : g . . . .
This tomb which made G . . . .
sē enē ēpi *po*yētŭ ēsēdē *i*nēfē : . . . . .
sē etesesēne : poreūemē*t*ewa : ofate*s*ēū :
for Poreuemete Ofatese's
nŭne : sē enē ēpi *po*yētŭ : ēsēdē inēfē : magaū
sē epipodŭ : edugrē : magaū : gaūwogepe

Owing to the extremely imperfect state of the copy of this inscription, greater liberties have

been taken than usual with the version given above. It appears from a memorandum of Mr. Daniell's, that the inscription is complete at the end, and that the breaks in the second and fifth lines are caused by flaws in the stone, in which no letters are lost.

The forms of several of the letters are unusual, and there are also peculiarities in the orthography, the letter 𐎢 being used in the first word instead of 𐎠, of which we have another instance in No. 31; and the same letter being employed in the dative, *Poreūemētewa*, is also peculiar. We might attach more importance to these variations if the copy of the inscription were more perfect.

The second word had, if we may trust the copy, four letters, and ended in *ze;* its meaning is obviously *tomb* or *monument.* There is no word in any other inscription which exactly fulfils these conditions; but below the battle-scene, No. 22, we probably have *fazeuē*, which may be an oblique case of *fazē*, and in *ērafazeya*, a *monument* or *tomb*, we have a compound word containing the same root.

Nune must be some term of relationship; it is used in a similar manner in other inscriptions.

Nos. 27 and 28. *On the two Sides of the Door of a Tomb at Rhodiopolis.*

These inscriptions relate to the same tomb, but do not appear to be in continuation of one another. The phraseology of both is different from those already examined, and the second contains very few words which have been yet made out.

The tomb is stated in the first inscription to be made by *Eyamara the son of Tērsseglē;* and the words *tekē eyamarayē*, at the beginning of the second inscription, mean *Tomb of Eyamara*, the second word being the possessive adjective derived from the name *Eyamara.*

No. 29. *At Antiphellus.*

The tomb on which this inscription occurs, is figured by Sir C. Fellows, p. 219 of "Journal in Asia Minor," and the beginning of the inscription was given by him as No. 23, Plate 36. The whole inscription has since been published by M. Tessier. On comparing the present copy with that given by the latter gentleman, the differences between them prove so great as to discourage the author from any attempt to restore

the text. The little which was copied by Sir C. Fellows corresponds much more nearly with the present copy than with M. Tessier's, and consequently confirms in part the accuracy of our new version.

The inscription is very different from all those which we have yet considered; it has none of the ordinary phrases of the monumental inscriptions, nor do we find anything which proves that it is, strictly speaking, funereal. Many of the words and expressions correspond with those on the obelisk at Xanthus, and it may possibly prove to be a decree or public document.

The remaining inscriptions are so imperfect that it is useless to attempt to translate them. In some instances, portions might easily be restored by comparing them with the more perfect specimens; but this would only lengthen the present paper, without adding to our stock of knowledge. The following short notice of them may suffice.

No. 30. *At Limyra.*

The tomb of *Mūnoūē the son of Tălēemē.*

No. 31. *At Limyra.*

Only the beginnings of each line remain, and

these are very imperfect. The names are all lost.

No. 32. *At Limyra.*

The latter half of each line is lost.

No. 33. *At Limyra.*

Full of blanks and unintelligible.

No. 34. *At Limyra.*

Over the door of a rock-tomb are two words in Greek characters, ΜΑΣΑ ΚΟΑΤΑ. On the lintel is a Lycian inscription in four lines, of which only the last few words of the last line could be copied, the rest being very imperfect.

No. 35.

One letter is wanting at the beginning of each line, and there are other blanks and inaccuracies.

No. 36. *At Tlos, on the next Tomb to that on which is the Figure of Bellerophon represented by Sir C. Fellows*, p. 136.

Mr. Forbes states that he believes the copy to be both exact and complete; nevertheless it may be suspected that we have only part of the inscription. The only intelligible words are the last, *sẽ lada eũwe, and his wife.*

APPENDIX II.

GREEK INSCRIPTIONS ILLUSTRATIVE OF THE SITES OF LYCIAN CITIES.

More than two hundred inscriptions in the Greek language were copied during our journey in Lycia. Of these, the greater number had never been published. The transcripts were made chiefly by Mr. Daniell; and such as were copied by his companions, were, in most cases, carefully collated by him. The memorandum-books containing these inscriptions have been deposited by us in the British Museum, and Mr. Birch will probably give an account of their contents. In the meantime, we have selected from among them those which throw new light on the geography of ancient Lycia, and the other provinces visited during our journey. They are mostly such as fix the names of ancient sites, hitherto unvisited, or not satisfactorily determined. We give them as they stand in the

note-books already mentioned, without comment or correction. We have appended references to the pages of the memorandum-books in which they may be found, and occasional notes respecting the cities of which they contain the names. They are arranged in the order of our journey.

ARAXA. (Vol. i. p. 40.)

"Araxa is placed by Ptolemy on the borders of Caria, and it is recognized by Stephanus and the Ecclesiastical Records. Sestini adduces a very scarce coin with the legend ΛΥΚΙΩΝ ΑΡΑ, which he attributes to Araxa."—Cramer, Asia Minor, vol. ii. p. 265. A bronze coin bearing the above legend, and attributed to Araxa, is described and figured in the seventh volume of the supplement to Mionnet. The following fragmentary inscription, copied from a slab at Orahn, proves the ruins at that place to be the remains of Araxa, and not of Massicytus, as formerly conjectured by Sir Charles Fellows, who first visited them.

ΦΙΕΡΟΥΝΤΟΣΙΓΝΑΙΟΥΑΥΙΔ....ΚΕΛΕΡΟΣΦΙΣΚΙΛΛΙ
...ΕΡΓΟΝΚΑΙΣΥΝΓΕΛ...
ΑΡΑΞΕΩΝΗΒΟΥΛΗΚΑΙΟΔΗΜ . . .

(Mem. iii. pp. 28, 29.)

CADYANDA. (Vol. i. p. 41.)

In addition to the inscriptions published by Sir Charles Fellows, we offer the following, proving the orthography of the name of this remarkable site.

On a slab nearly buried behind the central street :—

ΚΑΔΥΑΝΔΕΩΝΗΒΟΥΛΗ
ΕΤΕΙΜΗΣΕΝΦΙΛΩ
ΤΑΝΑΤΤΑΛΟΥΚΑΔΥΑΝΔΕ
ΑΑΝΔΡΑΚΑΛΟΝΚΑΙΑΓΑ
ΘΟΝΓΕΝΘΜΕΝΟΝΠΡΟ

(Mem. iii. p. 19.)

In a Turkish burial-ground on the plain of Makri, near the junction of the road from the Dey's Bridge with that from Pinara, at about two hours' journey from Makri, and five or six miles south of Cadyanda.

ΕΥΤΑΚΤΟΣΕΡΜΑΝΔΕΙΜΑΣΙΟΣΚΑΔΥΑΝΔΕΥΣΤΟ
ΜΝΗΜΕΙΟΝ
ΚΑΤΕΣΚΕΥΑΣΕΝΕΑΥΤΩΚΑΙΤΗΓΥΝΑΙΚΙΚΑΡΠΙΜΗ
ΚΑΙΤΟΙΣΤΕΚΝΟΙΣ
ΕΥΤΑΚΤΩΚΑΙΧΡΥΣΙΠΠΩΚΑΙΤΗΕΚΤΟΥΤΩΝΕΣΟΜ
ΕΝΗΓΕΝΕΛ
ΕΑΝΔΕΤΙΣΕΤΕΡΟΣΕΝΘΑΨΗΧΟΡΙΣΤΟΥΕΠΙΤΡΕΨΑΙ
ΓΙΝΑΗΜΩΝ
ΑΠΟΤΕΙΣΕΙΤΩΚΑΔΥΑΝΔΕΩΝΔΗΜΩ . . Φ.

(Mem. iii. p. 24.)

PHELLUS. (Vol. i. p. 76.)

Phellus is mentioned, in conjunction with Antiphellus, by several ancient authors. Strabo placed both towns inland, incorrectly; for of the site of Antiphellus on the coast there can be no doubt. This error led to the conjecture, that he had made the same mistake respecting Phellus. Thus Dr. Cramer suggests that Port Sevedo may answer to the latter site. In the enumeration of sea-side places given in the Stadiasmus, Antiphellus is mentioned, but Phellus is omitted. Our discovery of the ruins of Phellus in the high country behind Antiphellus, explains these statements of the old geographers.

In the following inscription on a sarcophagus in the plain of Avellah near the ruins, the name of the city is mentioned.

ΤΟΝΤΑΦΟΝΚΑΤΕΣΚΕΥΑΣ . . ΤΟΕΡΜΑΚΟΤΑΣ
ΙΕΡΩΝΟΣΦΕΛΛΕΙΤΗΣΕΑΥΤΩΚΑΙΤΗΓΥΝΑΙΚΙΑΥ
ΤΟΥΔΙΑΒΟΥΛΙΩΤΡΟΚΟΝΔΟΥ . . . . ΤΟΙΣΕΑΥΤ
ΩΤΕΚΝΟΙΣΝΑΝΝΗΙΑΣ . . . .

[The remainder is illegible, except a few letters.]

(Mem. iii. p. 54.)

In the Stadiasmus, among the places on the coast, mention is made of Acroterium between Aperlæ and Antiphellus.

'Απὸ Σομηναν εις Απέρλας σταδ.ν
'Απὸ 'Ακρωτηρίου εις Αντιφελλον σταδ.ν.

The ruins of Acroterium we have shown (vol. i. p. 80) to have been probably those discovered by Captain Beaufort at Pianduri. The mention of Phellus in the following line of an inscription on a sarcophagus at that place, renders it probable that Acroterium was the port of Phellus.

ΠΟΛΕΙΤΗ . . ΦΕΛΛΙΤΩΝΔΡΑΧΜΑΣΜΥΡΙΑΣ

[This inscription is much defaced.]

(Mem. iii. p. 50.)

CANDYBA. (Vol. i. p. 92.)

This city is mentioned by Pliny, Ptolemy, Stephanus and Hierocles, (v. Cramer, Asia Minor, vol. ii. p. 265.) The following inscription occurs at Gendever, without doubt the site of Candyba. It is carved on a plain rock-tomb.

ΤΟΝΤΑΦΟΝΩΝΗΣΑΤ . ΛΑΙΣΑΠΟΛΛΩΝΙΟΥΚΑΝΔΥΒΙ
ΣΑ
ΠΑΡΑΚΑΝΔΥΒΕΩΝ . . . . ΗΜΟΥΕΑΥΤΗΚΑΙΑΝΔΡΙΚΑΙ
ΓΑΜΒΡΩ
ΚΑΙΤΕΚΝΟΙΣΚΑΙΟΙΣΑΝΣΥΝΧΩΡΗΣΗ

(Mem. iii. pp. 58, 59.)

CYANEÆ.

"To the westward of Andriace we have two ancient sites determined by inscribed sepulchres,

which record the name of the city, and the inscriptions upon which have been copied by Mr. Cockerell; that of Cyana, or the city τῶν ΚΥΑΝΕΙΤΩΝ, at the head of Port Tristomo, as the inner part of the bay behind the island of Kakava is now called; and that of Aperlæ, or the city τῶν ΑΠΕΡΛΕΙΤΩΝ at the head of Assar Bay. In our copies of Pliny, the former is written Cyane; in Hierocles and the Notitiæ Episcopatuum, it is Cyaneæ. The Stadiasmus has omitted it, probably because it is at a considerable distance from the sea."—Leake, Asia Minor, p. 188, in the notes to the fifth chapter.

On the high table-land between Port Tristomo and the inland valley of Kassabar we found three ancient sites, which, from the inscriptions copied at each, appeared to be severally (or perhaps collectively) styled Cyaneæ. The site visited by Mr. Cockerell was probably either the largest and most important of these cities, that at Yarvoo, or the seaport of that city. At the ruins of the two other ancient towns of the same name, we found Lycian inscriptions as well as Greek; at Yarvoo, Greek only, and those of Roman times. The following inscriptions are selected from each of the localities:—

CYANEÆ AT TOUSA. (Vol. i. p. 110.)

ON A SARCOPHAGUS.

ΤΟΜΝΗΜΕΙΟΝΚΑΤΕΣΚΕΥΑΣΕΝΕΡΜΑ
ΣΑΛΑΣΔΙΣΤΟΥΕΜΟΚ . . . ΚΙΟΥΣΚΥΑ
ΝΕΙΤΙΣΕΑΥΤΩΚΑΙΓΥΝΑΙΚΙΑΥΤΟΥ
ΗΡΑΙΔΙΑΠΟΛΛΩΝΙΟΥΤΟΥΑΝ . ΟΝΕΙ
ΚΟΥΚΑΙΤΕΚΝΟΙΣΚΑΙΕΓΓΟΝΟΙΣΕΙΣ
ΔΕΤΟΥΤΟΣΟΥΙΟΣΕΝΚΗΔΕΥΘΗ . . Ε
ΤΑΙΤΛ . . . . ΚΑΙ . . ΠΑΡΞΑΝΤΑ . Η
ΜΕΙΝΔΕΟΥ . ΛΣΟΜΑΙΑΕΑΝΔΕΤΙΝΑ
ΚΑΙΕΤΕΡΟΝΒΟΥΛΗΘΗΕΝΚΗ . . . .
ΕΝΤΕΤΟΜΝ . ΜΕΙΟΚΛΙΤΟΥ . . . .
ΤΡΕΨ . . . . . ΕΑΝΔΕΤΙΣ
ΕΤΕΡΟΣΕΝΘΑΨΗΤΙΝΑΕΚΤΕΙΣΕΙΚΥ
ΑΝΕΙΤΩΝΤΟΔΗΜΟ [numerals.]

[A line on the base of the tablet effaced.]

(Mem. iii. p. 62.)

CYANEÆ AT YARVOO. (Vol. i. p. 113.)

ON A PEDESTAL.

ΘΕΩΜΕΓΑΛΩΑΡΕΙΚΑΙΕΛΕΥΘΕΡΑ
ΑΡΧΗΓΕΤΙΔΙΕΠΙΦΑΝΕΙΘΕΑΚΑΙΔΙΙ
ΑΥΤΟΚΡΑΤΟΡΙΚΑΙΣΑΡΙΤΙΤΩΑΙΛΙΩΑ
ΔΡΙΑΝΩΑΝΤΟΝΕΙΝΩΣΕΒΑΣΤΩΕΥ
ΣΕΒΕΙΠΠΚΥΑΝΕΙΤΩΝΗΒΟΥΛΗΚΑΙ
ΟΔΗΜΟΣΤΟΒΑΛΑΝΕΙΟΝΑΦΙΕΡΩ
ΣΕΝΕΠΙΓΝΑΙΟΥΑΡΡΙΟΥΚΟΡΝΗΛΙ
ΟΥΠΡΟΚΛΟΥΠΡΕΣΒΕΥΤΟΥΚ . .
ΑΝΤΙΣΡΑΤΗΓΟΥ

(Mem. iii. p. 66.)

Inscription over the door of a public building.

ΑΥΤΟΚΡΑΤΟΡΑΚΑΙ
ΣΑΡΑΤΙΤΟΝΑΙΛΙΟΝΑΔΡΙΑΝΟΝ
ΑΝΤΩΝΕΙΝΟΝΣΕΒΑΣΤΟΝ
ΕΥΣΕΒΗΠΑΤΕΡΑΠΑΤΡΙΔΟΣ
ΚΥΑΝΕΙΤΩΝΗΒΟΥΛΗΚΑΙΟΔΗΜΟΣ
ΤΟΝΕΥΕΡΓΕΤΗΝ.

(Mem. iii. p. 65.)

CYANEÆ AT GHIOURASTAN.

(Vol. i. p. 120.)

ΤΟΗΡ. ΔΙΟΝΠΡΟΓΟΝΙΚΟΝΙΑΣΟΝΟΣΚΑΙΣΕΡΑΤΟΣ
ΚΑΙΟΙΣΑΝΗΜΕΙΣ. ΘΕΛ. ΣΟΜΕΝΣΥΝΧΩΡΗΣΑΙΝ
ΑΛΛΟΣΔΕΟΥΔΙΣΘΑΨΕΙΤΙΝΑΗΘΘΑΨΑΣΟΦΕΙΛΗΣΕ
ΙΚΥΑΝΕΙΤΩΝΤΟΔΗΜ . . . ΦΞΞΟΥΣΙΑΝΕΧΟΝ
ΟΣΠ . . ΑΞΑΙΠΑΝΤΙΤΩΒΟΥΛΑΜΕΝΩΕΦΗΜΙΣΕΙ.

This inscription is on a rock-tomb, on which there is also a Lycian inscription.

(Mem. iii. p. 71.)

The words ΚΥΑΝΕΙΤΩΝΓΕΡΟΥΣΙΑ occur in the inscription on a sarcophagus at the same locality.

(Mem. iii. p. 68.)

SURA. (Vol. i. p. 135, and ii. p. 86.)

First two lines of a long inscription, (Mem. iii. p. 84,) on a slab or tablet cut on the face of the solid rock.

ΑΓΑΘΗΤΥΧΗ
ΑΠΟΛΛΩΝΙΣΟΥΡΙΩΑΡΧΙΕΡΕ . Σ

On a tablet by the side of the above is another long inscription, (Mem. iii. p. 85,) beginning in like manner:

ΑΓΑΘΗΤΥΧΗΙ
ΛΠΟΛΛΩΝΙΣΟΥΡΙΩ
ΑΡΧΙΕΡΕΩΣ.

And in a long and much defaced inscription, (Mem. iii. p. 88,) on a pilaster cut in the face of a rock at the same place, is the line

ΤΑΤΟΘΕΟΥΣΟΥΡΙΟΥ.

LIMYRA. (Vol. i. p. 147.)

Strabo, Pliny, Ptolemy, Stephanus, and other ancient geographers mention this important city. Their accounts of its position were such as to leave no doubts respecting the correctness of the identification of its ruins, which were made known by Captain Beaufort, and by Mr. Cocke-

rell. They were afterwards visited by Sir Charles Fellows, who added considerably to the number of copies of Lycian inscriptions from this interesting locality. Limyra appears to have been the city called Peracle by the people who used the peculiar language known as "Lycian." No Greek inscription containing the name of the city had as yet been found—for such we sought diligently. Only one rewarded our exertions. It was the following, carved on a tablet in the solid rock near the theatre. The tomb referred to in it, is not visible.

ΤΗΝΣΟΡΟΝΚΑΤΕΣΚΕΥΑΣΕΝΣΟ .
. ΛΟΣΑΙΧΜΩΝΟΣΛΙΜΥΡΕΥΣΕΑΥΤΩ
ΚΑΙΤΗΓΥΝΑΙΚΙΑΥΤΟΥΜΟΝΙΜΗ
ΤΗΚΑΙΣΠΟΡΟ . ΥΤΙΚΑΙΤΩΠΕΝΘΕ
ΡΩΑΥΤΟΥΑΡΤΕΙΜΑΔΙΣΚΑΙΤΕΚΝΟΙΣ
ΤΟΙΣΓΕΓΕΝΗΜΕΝΟΙΣΑΤΟ
ΕΚΤΗΣΠΡΟΔΗΛΟΥΜΕΝΗΣΓΥΝΑΙ
ΚΟΣΜΟΥΜΟΝΙΜΗΣΑΛΛΩΜΗΔΕΝΙ
ΕΞΕΣΤΩΘΑΨΑΙΗΑΝΟΙΣΑΙΤΗΝΔΕΤΗΝ
ΣΟΡΟΝΕΙΔΕΜΗΟΦΕΙΛΗΣΕΙΤΗΛΙΜΥ
ΡΕΩΝΓΕΡΟΥΣΙΑ . ΦΕΠΙΤΩΤΟΝ .
ΛΕΞΑΝΤ . ΛΛΑΒΕΙΝΤΟΤΡΙΤΟΝ

(Mem. iii. p. 99.)

Port of Limyra.

Around the ancient tower, commanding the little port close to the mouth of the Limyrus, at one angle of the bay of Phinika, are several sarcophagi with more or less legible inscriptions. In one occur the words

ΙΑΣΟΝ ΛΙΜΥΡΕΥΣ

and the line

ΤΗΛΙΜΥΡΕΩΝΤΕΡΟΥΣΙΑΔΡΑΧΜΑΣΧΕΙΛΙΑΣ.

(Mem. iii. p. 98.)

CORYDALLA, RHODIAPOLIS, and GAGÆ.

(Vol. i. p. 164.)

These three cities are mentioned together by Pliny (V. c. 27); Gagæ is mentioned by Scylax, Stephanus Byzantinus, Hierocles, and in the Stadiasmus. (Cramer, loc. cit. ii. p. 255.) Corydalla is mentioned by Ptolemy, and by Stephanus, who also mentions Rhodiapolis under the name of Rhodia.

The site hitherto supposed to be Gagæ we have

shown to be Corydalla (Vol. i. p. 164); and our discovery of Rhodiapolis in the immediate neighbourhood of that city explains the connection of their names in the writings of ancient geographers. All three sites were proved by inscriptions.

In the inscriptions on the large monument at Rhodiapolis (see Vol. i. p. 182), the names of these three cities are recorded in connection.

Corydalla, according to the Peutinger table was 29 miles from Phaselis on the road to Patara (v. Leake's Asia Minor, p. 186). In an inscription copied by Mr. Cockerell at Olympus, Rhodiapolis is spelt Rhodiopolis. (See Leake, loc. cit.)

CORYDALLA.

Inscription (Mem. iii. p. 106), referred to at p. 164.

ΑΥΤΟΚΡΑΤΟΡΚΑΙΣΑΡΜΑΡ
ΚΟΝΑΥΡΗΛΙΟΝΑΝΤΩΝΕΙΝΟΝ
ΣΕΒΑΣΤΟΝΚΟΡΥΔΑΛΛΕ
ΩΝΗΒΟΥΛΗΚΑΙΟΔΗΜΟΣ

Rhodiapolis.

ΑΣΚΛΗΠΙΩΙΚΑΙΥΓΙΑΙ
ΡΟΔΙΑΠΟΛΕΙΤΩΝΗΒΟΥΛΗΚΑΙΟΔΗΜΟΣ
ΚΑΙΗΓΕΡΟΥΣΙΑΕΤΕΙΜΗΣΑΝΤΑΙΣΔΙΗΝΗ
ΚΕΣΙΝΚΑΤΕΤΟΣΤΕΙΜΑΙΣΗΡΑΚΛΕΙΤΟΙ
ΗΡΑΚΛΕΙΤΟΥΤΟΡΕΙΟΥΤΟΝΠΟΛΕΙΤΗΝΚΑΙ
ΡΟΔΙΟΝΦΙΛΟΠΑΤΡΙΝΙΕΡΕΑΑΣΚΛΗΠΙΟΥ
ΚΑΙΥΓΙΑΣ . ΙΚΟΝΙΕΠΙΧΡΥΣΩΚΑΙΤΩΤΗ
ΠΑΙΔΕΙΑΣΑΝΔΡΙΑΝΤΙΟΝΕΤΕΙΜΗΣΑΝΟΜ
ΩΣΑΛΕΞΑΝΔΡΕΙΣΡΟΔΙΟΙΑΘΗΝΑΙΟΙΚΑΙ
ΙΕΡΩΤΑΤΗΑΡΕΟΠΑΓΕΙΤΩΝΒΟΥΛΗΚΑΙΟΙ
ΑΘΗΝΗΣΙΝΕΠΙΚΟΥΡΕΙΟΙΦΙΛΟΣΟΦΟΙΚΑΙΗ
ΙΕΡΑΘΥΜΕΛΙΚΗΣΥΝΟΔΟΣΠΡΩΤΟΝΑΠΑΙ
ΩΝΟΣΙΑΤΡΟΝΚΑΙΣΥΝΓΡΑΦΕΑΚΑΙΠΟΙΗ
ΤΗΝΕΡΓΩΝΙΑΤΡΙΚΗΣΚΑΙΦΙΛΟΣΟΦΙΑΣ
ΟΝΑΝΕΓΡΑΨΑΝΙΑΤΡΙΚΩΝΠΟΙΗΜΑΤΩΝ
ΟΜΗΡΟΝΕΙΝΑΙΑΛΙΤΟΥΙΠΗΣΙΑΤΙΜΗΘΕΝΤΑ
ΙΑΤΡΕΥΣΑΝΤΑΠΡΟΙΚΑΝΑΟΝΚΑΤΑΣΚΕΥ
ΑΣΑΝΤΑΚΑΙΑΓΑΛΜΑΤΑΑΝΑΘΕΝΤΑΑΣΚΛΗ
ΠΙΟΥΚΑΙΥΓΕΙΑΣΚΑΙΤΑΣΥΝΓΡΑΜΜΑΤΑΑΥ
ΤΟΥΚΑΙΠΟΙΗΜΑΤΑΤΗΠΑΤΡΙΔΙΑΛΕΞΑΝ
ΔΡΕΥΣΙΡΟΔΙΟΙΣΑΘΗΝΑΙΟΙΣΧΑΡΙΣΑ
ΜΕΝΟΝΤΗΠΑΤΡΙΔΙΕΙΣΔΙΑΝΟΜΑΣΚΑΙ
ΑΤΩΝΑΣΑΣΚΛΗΠΙΩΝΚΑΙΑΡΓΥΡΙΟ .
* ΜΥΡΙΑΚΑΙΠΕΝΤΑΚΙΣΧΙΛΙΑΟΝΕΤΕ
ΜΗΣΕΝΗΠΑΤΡΙΣΚΑΙΠΡΟΣΕΔΡΙΑ.

This inscription (Mem. iii. p. 112) is on a pedestal, apparently intended for a statue; the first line is in larger letters and on the cornice.

Gagæ. (Vol. i. p. 185.)

Fragment (Mem. iii. p. 124) in the Turkish burying-ground, below the acropolis. The right side is broken away.

ΣΥΝΟΓΡΑΜ
ΤΩΕΘΝΕΙ
ΝΜΕΓΑΛΟΦΡΥΝΩΣ
ΔΕΤΗΣΠΑΤΡΙΔΟΣ
ΣΙΩΑΝΔΡΙΑΝΤΙ
ΝΩΝΕΥΓΕΝΙΑΣ
ΜΟΣΕΤΕΙΜΗΣΕΝ
ΧΡΥΣΩΕΙΚΟΝΙΧΑΛ
ΓΑΓΩΣΙΝ
ΠΟΛΕΟΣΓΑΓΑΤΗΝ
ΠΡΟΓΟΝΩΝΓΡΑΜ.

ACALISSUS. (Vol. i. p. 167.)

"Cana, noticed by Pliny, is said, in the Episcopal records, to have been also called Acalea; but this last should be identified more probably with Acalissus, mentioned by Hierocles (p. 683), and the Notitiæ."—Cramer, Asia Minor, ii. 265.

"Pliny names alone Ascandelis, which however may be Acalissus."—Cramer, loc. cit.

Acarassus, enumerated among Lycian towns in the Lexicon of Stephanus, may have been Acalissus.

Inscription on a sarcophagus much weather-worn and of ordinary workmanship:

ΕΡΜΑΣΤΑΗΚΑΙΑΜΙΑΔΗΜΗ
ΤΡΙΟΥΑΚΑΛΙΣΣΙΣΑΝΕΣΤΗΣ
ΕΝΤΟΑ . ΓΕΙΟΝΤΩΓΕΝΟΜΕΝ .
ΑΝΔΡΙΑΥΤΗΣΙΑΛΔΙΣΤΡΑΤΩΕ
ΡΜΑΙΟΥΑΚΑΛΙΣΣΕΙΠΟΛΛΑΚΙΣ
. . . . . ΤΗ . ΕΠ
ΑΤΡΙΔΟΣΚΑΙΛ . ΣΤΕΤΕΑΕΚΕΝΑ
ΡΧΑΣ . . ΚΑΙΕΑΥΤΗΚΑΙ
ΤΟΙΣΤΕΚΝΟΙΣΑΥΤΩΝΠΑΝ . . .
. . . . . ΚΑΙΤΟΝ . . .

(Mem. iii. p. 116.)

The word Acalissus occurred in another inscription at the same locality.

EDEBESSUS. (Vol. i. p. 169.)

One of the Lycian towns enumerated in the Lexicon of Stephanus. "In Hierocles (p. 683) it is erroneously written Elebessus."—Cramer, Asia Minor, ii. 266.

On a sarcophagus. (Mem. iii. p. 117.)

ΚΟΝΔΟΣΑΣΟΡΕΙΟΥΔΙΣΑΚΑ . ΑΠΟΕΙΔΕΒΗΣΣΟΥ
ΚΑΤΕΣΚΕΥΑΣΕΝΕΑΥΤΩΚΑΙΓΥΝΑΙΚΙΚΑΙ
ΤΕΚΝΟΙΣΚΑΙΓΥΝΑΙΞΙΑΥΤΩΝΚΑΙ
ΤΟΙΣΕΑΥΤΩΝ

On another. (Mem. iii. p. 122.)

ΚΛΑΔΟΣΚΙΡΝΙΟΥΜΕΝΙΠ
ΠΟΥΑΚΑΛΛΙΣΣΕΥΣΑΠΟΙ
ΔΕΒΗΣΣΟΥΚΑΤΕΣΚΕΥΑ
ΣΕΝΤΟΗΡΩΟΝΕΑΥΤΩΚΑΙ
ΓΥΝΑΙΚΙΚΑΙΤΕΚΝΟΙΣΚΑΙΓΥ
ΝΕΞΙΝΑΥΤΩΝ

On another inscription, (Mem. iii. p. 118,) the word ΙΔΕΒΗΣΣΕΥΣ occurs, without any mention of Akalissus; and in a fourth, (p. 123,) ΙΔΕΒΗΣΣΕΩΝ. The following, on a fragment of a public monument, affords an indication of the period when the city was probably in its most prosperous state.

ΘΕΟΝΚΟΜΟΔΟΝΘΕΟΝΜΑΡΚΟΝΑΥΡΗΛΙΟΝΑΝΤΟΝ
ΕΙΝΟΝΣΕΒΑΣΤΟΝΤΟΝΣΩ
ΤΗΡΑΚΑΙΕΥΕΡΓΕΤΗΝ

The inscriptions at Edebessus are numerous, and very perfect. With the exception of the

last, they are all funereal. Eleven were copied by our party.

LAGON. (Vol. i. p. 229.)

A city mentioned by Livy in his account of the march of Manlius.

On a pedestal by the side of the great cistern. (Mem. iii. p. 150.)

ΑΥΡΘΟΜΟΥ
. . ΘΑΓΟΡΑΣΕΙΡΗΝ
ΑΡΞΑΣΣΤΗΣΑ
ΤΟΒΩΜΟΥΣ
ΦΟΙΒΩΚΑΙΚΟΥ
ΡΗΑΡΤΕΜΙΔΕΙ
ΝΕΚΕΝΕΥΧΗΣ
ΜΕΤΡΟΝΜΗ . ΗΣ
ΠΗΧΕΙΣΑΣΠΗΓΑΙΣ
ΥΠΟΝΥΜΦΩΝ
ΑΜΦΩΟΠΩΣΠΟ
ΤΑΜΟΣΛΑΓΟΝΩΝ .
ΡΕΙΟΡΟΙ . . . ΟΧΕΥΟΙ .

TERMESSUS. (Vol. i. p. 234.)

The determination, beyond question, of the site of this great and important city, was one of the most satisfactory results of our journey. Interesting as the cities of Lower Lycia are, on account of the beauty of their sites, and the

remarkable remains of antiquity they contain, few of them are linked with important events in history, and some of the most extensive are little more than named by ancient authors. This is not the case with Termessus Major, which, from the earliest times, appears to have been a city of great consequence, and to have played a distinguished part in war. Hence we find the Termessians often mentioned by ancient historians, and their city fully described. We copied many inscriptions among the ruins of Termessus. Some of these were also copied by Professor Schonbrun, who appears to have visited this site during the same year: his have been lately published in Boeckh's Corpus. Among them is the first of the following: we repeat it from our own transcript on account of its importance, since it contains the name of the city with the epithet *Greater* affixed.

On a pedestal.

ΒΟΥΛΗΣΚΑΙΔΗ
ΜΟΥΔΟΓΜΑΤΙΤΟΝ
ΚΡΑΤΙΣΤΟΝΠΡΑΙ
ΠΟΣΙΤΟΝΚΩΝΣΤΑΝ
ΤΕΙΝΟΝΗΛΑΜΠΡΑ
ΤΕΡΜΗΣΣΕΩΝΤΩΝ

ΜΕΙΣΟΝΩΝΠΟΛΙΣ
ΤΟΝΙΔΙΟΝΑΥΤΗΣ
ΒΟΥΛΕΥΤΗΝΚΑΙΕΝ
ΠΑΣΙΝΕΥΕΡΓΕΤΗΝ

(Mem. iii. p. 156.)

A fragment.

ΝΚΥΡΙΑΝΠΑ
ΡΙΔΑΤΕΡΜΗΣ
ΣΟΝΑΥΡ . ΙΟΥΛΙ
ΑΝΟΣ.

On a pedestal in front of a small temple.

ΗΠΑΤΡΙΣΕΚΤΩΝΔΗΜΟΣΙΩΝ
ΙΕΡΕΑΘΕΑΣΡΩΜΗΣ
ΚΑΙΔΙΟΝΥΣΟΥΔΙΑΒΙ
ΟΥΜΑΡ . ΑΥΡ . ΠΛΑΤΩΝΙ
ΑΝΟΝΟΤΑΝΗΝΑΡΧΙ
ΕΡΑΣΑΜΕΝΟΝΤΟΥΣ
ΕΒΑΣΤΟΥΜΕΓΑΛΟΠΡΕ
ΠΩΣΚΑΙΑΡΞΑΝΤΑΕΝ
ΔΟ . ΩΣΚΑΙΦΙΛΟ
ΤΕΙΜΗΣΑΜΕΝΟΝ
ΤΗΠΑΤΡΙΔΙΕΙΣΑΙ
ΩΝΙΟΝΝΕΜΗΣΙΝ
ΑΡΓΥΡΙΟΥΚΕΦΑΛΑΙ
ΟΥ * ΜΥΡΙΑΔΑΣΔΕ
ΚΑΙΕΞΚΑΙ * ΠΕΝ
ΤΑΚΙΣΧΕΙΛΙΑΠΕΝ
ΤΑΚΟΣΙΑ.

(Mem. iii. p. 158.)

On a pedestal.

ΒΟΥΛΗΣΚΑΙΔΗ
ΜΟΥΔΟΓΜΑΤΙ
ΤΟΝΚΡΑΤΙΣΤΟΝ
ΠΡΑΙΠΟΣΙΤΟΝ
ΙΟΥΣΤΕΙΝΟΝ
ΗΛΑΜΠΡΑΤΕΡ
. . . . .
ΜΕΙΣΟΝΩΝΠΟ
ΛΙΣΤΟΝΙΔΙΟΝΑΥ
ΤΗΣΕΝΠΑΣΙΝ
ΕΥΕΡΓΕΤΗΝ.

(Mem. iii. p. 157.)

CIBYRA. (Vol. i. p. 256.)

Among the inscriptions copied at this great and important city, are the following, in which mention is made of its name.

On a pedestal.

ΚΑΙΣΑΡΕΩΝΚΙΒΥΡΑΤΩΝΗΒΟΥ
ΛΗΚΑΙΟΔΗΜΟΣΕΤΕΙΜΗΣΑΝΤΙ
ΚΛΦΛΑΟΥΙΑΝΟΝΥΙΟΝΤΙΚΛ
ΠΑΥΛΕΙΝΟΥΥΠΑΤΙΚΟΥΚΑΙ
ΚΛ . ΜΑΡΚΙΟΛΛΗΣΥΠΑΤΙΚΗΣ
ΠΡΟΝΗΣΑΜΕΝΟΥΤΗΣΚΑΤΑ
ΣΚΕΥΗΣΚΑΙΑΝΑΣΤΑΣΕΩΣΤΟΥ
ΑΝΔΡΙΑΝΤΟΣΣΑΚΕΡΔΩΤΟΣ
ΤΡΙΣΤΟΥΓΕΝΟΜΕΝΟΥΓΡΑΜ

ΜΑΤΕΩΣΤΗΣΠΟΛΕΩΣΕΝΤΩ
ΑΤΩΠΕΝΤΕΚΟΣΤΩΕΚΑ
ΤΟΣΤΩΕΤΕΙ.

(Mem. iii. p. 167.)

ON A PEDESTAL.

ΛΟΥΚΙΟΝΑΙΛΙΟΝΚ
ΚΑΙΣΑΡΟΣΤΡΑΙΑΝΟΥ
ΑΔΡΙΑΝΟΥΣΕΒΑΣ
ΤΟΥΥΙΟΝΘΕΟΥΤΡΑ
ΙΑΝΟΥΠΑΡΘΙΚΟΥΥΙ
ΩΝΟΝΘΕΟΥΝΕΡΟΥΑ
ΠΡΟΕΓΟΝΟΝΔΗΜΑΡ
ΚΙΚΗΣΕΞΟΥΣΙΑΣΥ
ΠΑΤΟΝΤΟΔΕΥΤΕΡΟΝ
ΗΚΑΙΣΑΡΕΩΝΚΙΒΥΡΑΤΩΝ
ΠΟΛΙΣΤΟΝΙΔΙΟΝΕΥΕΡΓΕ
ΤΗΝΕΠΙΜΕΛΙΘΕΝΤΩΝΤΗΣ
ΑΝΑΣΤΑΣΕΩΣΤΩΝΠΕΡΙ
ΜΚΛΑΥΔΙΟΝΦΛΑΟΥΙΑ
ΝΟΝΑΡΧΟΝΤΩΝΚΑΙΤΟΥ
ΓΡΑΜΑΤΕΩΣΠΟΠΛΙΟΥ
ΑΙΛΙΟΥΟΡΕΣΤΟΥ.

(Mem. iii. p. 173.)

One of the inscriptions on the Diazoma of the Gymnasium or Theatre at Cibyra.

ΥΡΑΤΩΝΔΗΜΟΣΠΕΠΛΟΥΠΑΝΚΡΑΤΟΥ . ΡΜΗΕΤΕΙ
ΜΗΣΕΝ
ΚΟΙΝΤΟΝΟΥΗΡΑΤΟΝΤΡΟΙΛΟΥΥΙΟΝΚΛ . . . ΤΟΥΜΕ
ΙΝΑΝ

ΦΙΛΑΓΡΟΝΕΝΕΑΛ . ΕΤΗΣΓΥΜΝΑΣΙΑΡΧΟΝΕΠΙΕΤΗ
ΔΕΚΑ . Υ . . ΑΣΓΥΜΝΑΣΙΑΡΧΗΣΕΝΑΥΤΟΣΤΩΝ
ΕΧΑΡΙΣΑΤΟΔΕΤΗΙΠΟΛΕΙΕΙΣΤΗΝΜΕΤΑΤΑΥΤΑ
ΓΥΜΝΑΣΙΑΡΧΙΑΝΤΗΝΑΙΩΝΙΟΝΜΥΡΙΑΔΑΣΔΡΑΧ
ΜΩΝ
ΡΩΔΙΩΝΤΕΣΣΑΡΑΚΟΝΤΑΩΣΓΥΜΝΑΣΙΑΡΧΕΙΣΘΑΙ
ΕΚΤΩΝΤΟΚΩΝ . . ΗΔΕΑΙΩΝΙΟΣΓΥΜΝΑΣΙΑΡΧΙΑΗΡ
ΞΑΤΟ
ΕΤΟΥΣΕΝΑΤΟΥΤΕΣΣΑΡΑΚΟΣΤΟΥΤΗΣΚΤΙΣΕΩΣ
ΤΩΝΤΟΣΦΙΛΑΓΡΟΥ
ΤΟΥΡΟΜΑΙΚΟΥΔΗΝΑΡΙΟΥΣΧΥΟΝΤΟΣΑΣΣΑΡΙΑΔΕ
ΚΑΕΞ
ΗΡΟΔΙΑΔΡΑΧΜΗΤΟΥΤΟΥΤΟΥΔΗΝΑΡΙΟΥΣΧΥΕΙΕΝ
ΚΙΒΥΡΑ
ΑΣΣΑΡΙΑΔΕΚΑΕΝΗΙΔΡΑΧΜΗΙΡΟΔΙΑΙΔΕΔΟΤΑΙΗΔ
ΩΡΕΑ

(Mem. iii. p. 169.)

BUBON, BALBURA, AND ŒNOANDA.

The three cities of Cabalia which with Cibyra constituted a tetrapolis. "Each of these towns had one vote in the general assembly of the states, except Cibyra, which had two, in consideration of its superior power."—(Cramer, Asia Minor, ii. p. 270.) When the last Moagetes, tyrant of Cibyra, was conquered by Muræna, his capital was annexed to Phrygia, and the three Cabalian towns to Lycia. They are mentioned together by Strabo, Pliny, Ptolomy,

Hierocles, and Stephanus. The site of Bubon was discovered during our journey: Balbura and Œnoanda had been found by Mr. Hoskyn and Mr. Forbes during the previous autumn. We have added inscriptions confirming those sites. Several have already been published by Mr. Hoskyn, with a valuable comment by Colonel Leake, in the twelfth volume of the Journal of the Royal Geographical Society; and others, by Professor Schonbrun, in Boeckh's Corpus.

BUBON. (Vol. i. p. 264.)

On a pedestal. (Mem. iii. p. 174.)

ΒΟΥΒΩΝΕΩΝΗΒΟΥΛΗΚΑΙΟΔΗ
ΜΟΣΕΤΕΙΜΗΣΕΝΑΡΤΕΜΙΟΝ .
ΤΡΟΙΛΟΥΟΡΕΣΤΟΥΒΟΥΒΟΝΙΑ .
ΓΥΝΑΙΚΑΕΥΓΕΝΙΔΑΤΑΞΕΩΣΤΩΗ
ΠΡΩΤΕΥΟΗΓΩΝΤΗΣΠΟΛΕΟ .
ΠΑΤΡΟΣΚΑΙΣΥΝΓΕΝΩΝΑΡΞΑ .
ΤΩΝΤΗΣΠΑΤΡΙΔΟΣΚΑΙ
ΤΟΥΛΥΚΙΩΝΕΘΝΟΥΣΣΩ
ΦΡΟΝΛΦΙΑΑΝΔΡΟΝΠΑΣΗΑ
ΡΕΤΗΚΕΚΟΣΜΗΜΕΝΗΝΙΕΡΑ
ΣΑΜΕΝΗ . ΤΩΝΘΕΩΝΣΕΒΑΣ
ΤΩΝΜΕΤΑΚΑΙΤΟΥΑΝΔΡΟΣΛΥ
ΤΗΣΝΕΑΡΧΟΥΤΡΙΣΤΟΥΜΟ
. ΛΕΣΕΟΣΒΟΥΒΩΝΕΟΣΚΑΙ
ΠΟΛΛΑΚΑΙΜΕΓΑΛΑΑΝΑ . .
ΣΑΣΑΝΤΗΠΑΤΡΙΔΙ.

Inscription copied at Trimeli.

ΕΡΜΑΣΑΡΦΙΑΔΙ
ΤΗΙΔΙΑΓΥΝΑΙΚΙ
ΤΗΤΡΥΦΩΝΟΣ
ΘΥΓΑΤΡΙΓΕΝΕΙ
ΚΟΛΟΣΣΗΝΗ
. . . . ΗΣΕΝΕΚΑ

Balbura. (Vol. i. p. 268.)

On a pedestal. (Mem. iii. p. 177.)

ΒΑΛΒΟΥΡΕΩΝ
ΤΗΝΒΟΥΛΗΝ
ΚΑΙΤΟΝΔΗΜΟΝ
ΤΟΥΣΕΑΥΤΟΥ
ΔΕΣΠΟΤΑΣ
ΟΝΗΣΙΜΟΣΔΗ
ΜΟΣΙΟΣ . Α
ΟΙΣΚΑΙΠΡΟΣ
ΕΘΕΤΟ . ΙΣΤΟ
ΣΕΙΤΟΜΕΤΡ
ΟΝΚΑΤΕΤΟΣ
Μ.ΤΝΒ

Œnoanda. (Vol. i. p. 273.)

Part of an inscription (Mem. iii. p. 178) on a pedestal.

ΜΑΡΤΥΡΗΘΝΤΑΔΕΚΑΙΥΠΟΤΗΣΚΡΑ
ΤΙΣΤΗΣΟΙΝΟΑΝΔΕΩΝΠΟΛΕΟΣΔΙΑ
ΤΕΨΗΦΙΣΜΑΤΟΣΚΑΙΕΠΙΣΤΟΛΩΝ

On a tablet on the walls of the city, near a gateway.

ΧΡΟΜΑ
ΤΙΣΘΕΩ
ΥΨΙΣΤΩ
ΤΟΝΛΥ
ΧΝΟΝ
ΕΥΧ . .

On a pedestal. (Mem. iii. p. 180.)

ΑΓΩΝΟΘΕΤΟΥΝΤΟΣΙΟΥ
ΛΙΟΥΛΟΥΚΙΟΥΠ . ΙΛΙΟΥΕΥ
ΑΡΕΣΤΟΥΠΑΝΕΓΥΡΕΩΣ
Ε . . . . . ΕΥΑΡΕΣΤΕΙ
ΩΝΗΣΑΥΤΟΣΣΥΝΕΣΤΗΣΑ
ΤΟΕΞΟΙΚΙΩΝΧΡΗΜΑΤΩΝ
ΠΟΠΠΑΙΟΣΣΘΕΝΙΟΣΦΡΟΝ
ΤΩΝΟΙΝΟΑΝΔΕΥΣΥΙΟΣ[10]
ΠΑΙΟΥΣΘΕΝΙΟΥΛΙΚΙΝΙΑ
ΝΟΥΣΤΕΦΘΕΙΣΑΝΔΡΩΝ
ΠΑΝΚΡΑΤΙΟΝΚΟΙΝΟΝ
ΛΥΚΙΩΝ
ΠΑΙΔΩΝΜΕΝΤΑΠΡΩΤΑΠΑΛΗΝ
ΕΣΤΕΨΕΜΕΠΑΤΗΡ
ΚΑΙΚΥΔΗΝΕΚΛΥΤΗΕΙΚΟΝΙΧΑΛ
ΚΕΛΑΤΩ
ΠΑΝΚΡΑΤΙΟΝΔΑΝΔΡΟΝΚΟΙΝΟΝ
ΛΥΚΙΩΝΜΕΤΕΠΕΙΤΑ
ΑΡΑΜΕΜΟΣΠΑΤΡΗΘΗΚΕΡΑΤΟΝ
ΖΟΑΝΟΝ

On a pedestal. (Mem. iii. p. 181.)

ΟΔΗΜΟΣΟΤΕΡΜΗΣΣΕΩΝ
ΠΡΟΣΟΙΝΟΑΝΔΟΙΣΕΤΕΙΜΗ . . .
ΚΛΤΑΤΑΠΡΟΣΨΗΦΣΜΕ . . . . .
ΠΟΛΥΚΛΕΙΑΝΚΡΟΙΣΟΥΤΗΣ
ΓΥΝΑΙΚΑΔΕΤΛΗΠΟΛ
ΣΟΥΜΕΡΑΣΑΜΕΝΗ
. . . . . .
. . ΤΑΙΣ . . . Ν . .
ΩΣΤΕΦΑΝΩ
ΦΡΟΣΥΝΗΣΕΝΕΚΕΝ

ARSA. (Vol. i. p. 293.)

This city is not mentioned by any ancient author whose works are extant.

On a sarcophagus. (Mem. iii. p. 184.)

ΑΡΣΑΔΕΩΝΟΔΗΜΟΣΕΤΕΙΜΗΣΗΝΧΡΥ
ΣΩΣΤΕΦΑΝΩΚΑΙΕΙΚΟΝΙΧΑΛΚΗΣΥΜΒΡΑΝΜΝΗ
ΣΙΒΙΟΥΚΑΘΥΙΟΘΕΣΙΑΝΔΙΟΜΗΔΟΥΑΡΣΑΔΕΑΣΕΙ
ΤΩΝΗΣΑΝΤΑΤΗΠΟΛΕΙΚΑΙΑΡΓΥΡΙΟΝΑΝΑΠΟΛΟΤΟΝ
ΔΟΝΤΑΚΑΙΧΕΙΡΙΣΤΕΥΣΑΝΤΑΚΑΙΔΗΜΑΡΧΗΣΑΝ
ΤΑΚΑΙΙΕΡΑΤΕΥΣΑΝΤΑΑΠΟΛΛΩΝΟΣΚΑΙΥΠΟ
ΔΕΞΑΜΕΝΟΝΤΟΣΥΝΠΑΝΠΛΗΘΟΣΔΙΔΟΝΤΑ
ΔΕΚΑΙΕΙΣΠΑΝΔΗΜΟΝΤΥΠΟΛΟΧΗΝΑΡΓΥΡΙΟΝΚΑΙΕΜ

APPENDIX III.

REMARKS ON THE EARLY COINS OF LYCIA, BY DANIEL SHARPE, ESQ.

HAVING been requested by Lieutenant Spratt and Mr. Forbes to describe the early Lycian coins collected during their journey in Asia Minor, I have drawn up the following remarks on the subject, and have included in them an account of all the early coins of Lycia which we could meet with, which had not been described in my Appendix to Sir C. Fellows's work on Lycia.

In the term "early coins of Lycia" it is intended to include all the coins supposed to be Lycian, prior to those with Greek legends, or with the type of a lyre: thus restricting the subject to those coins which illustrate the history of the Tremilæ, or aboriginal Lycians. Of these coins there are two principal classes, which belong to two distinct periods:—1st. Those distinguished

UNIVERSITY OF CALIFORNIA

LYCIAN COINS.

E. Forbes del.

W. A. Ogg sculp.

Published by John Van Voorst Paternoster Row.

by the *Triquetra*, which must be taken as the national emblem of the country: the workmanship shows us that this series begins at a very early period, and ceases some time prior to the Macedonian conquest. 2nd. Those without the *Triquetra*, but which we know to be Lycian by the characters used in their legends. These are of a more modern workmanship than the preceding; and, judging from the style of art, were probably struck within fifty years before or after the Macedonian conquest.

1st. *Lycian coins distinguished by the Triquetra.*

No. 1.—Head of Pan? with horns, to the left: *rev.* A Triquetra, with the legend Γ PEKΛ.
Copper: weight 30 grs. In the possession of Captain Graves, R.N.

No. 2.—Fore-part of a Goat? much defaced: *rev.* Triquetra, with the same legend as the preceding.
Copper: weight 18½ grs. In the British Museum. Brought from Lycia by the Rev. Mr. Daniell.

An imperfect coin, similar to No. 1, was published by Sir. C. Fellows, Pl. 37, fig. 4, and p. 459; where, the first letter being lost, the legend was read *ēreclē*, and the coin referred

to the town of Heraclea in Caria. It is now certain from these and other coins, one of which is figured in the same work, p. 465, No. 31, that the name when complete is *Pērecl̄e*. This name and its derivations are found on so many inscriptions at and near Limyra, that Mr. Daniell conjectured, in one of his letters, that it was the original Lycian name of that town: there is every reason to think this conjecture correct; the name Limyra has a very Greek aspect, and no word resembling it occurs in any of the Lycian inscriptions.

Coins resembling No. 1 are common; Mr. Daniell brought home three from Lycia, which are now in the British Museum, and there are many others in different collections: weight, 20, 27½, 30, 44 grains.

The only Lycian coins of copper yet found are of *Pērecl̄e*.

No. 3.—A Lion upon the back of a Bull: *rev.* Triquetra in a sunk square surrounded by a beading, with the legend ΚΟΓ * ΛΛΕ.

Silver: weight 132½ grs. In the British Museum. From the Devonshire Collection.

No. 4.—A bearded Head, with a helmet, to the right: *rev.* Triquetra in a sunk square, with the legend ΚΟΓ * Λ.

Silver: weight 42 grs. In the possession of Captain Graves, R.N.

No. 5.—A naked Warrior with a helmet and sword, in the act of striking, to the left: *rev.* Triquetra in a sunk square surrounded by a beading, with the legend KOΓ.

Silver: weight 131 grs. In the British Museum. From the Devonshire Collection.

Sir C. Fellows published several coins of this town in his Tour in Lycia, Pl. 37, Nos. 2, 6, 7, 12, 17, 22, and p. 461, No. 25. Others are described in Mionnet, Suppl. vol. vii. p. 301, No. 589; Eckhel, vol. iv. p. 164; and Pembroke Collection, part ii. t. 15. They are remarkable for the great variety of their reverses, of which we now have nine different types.

The name was first read *Kopalle*; but it is now certain that the fourth letter is P, and that we must read *Koprlle*, the pronunciation of which may have been either *Koperlle* or *Koprelle*. In the corrected copy of the inscription on the Xanthus obelisk, brought home by Sir C. Fellows, the name is also found as above, written with P, and not, as in his first copy of the inscription, with A, (S.W. side, line 16.)

The name, as thus corrected, has no resem-

blance to that of any town mentioned by the ancient geographers; and we are forced to conclude that it is the Lycian appellation of a town which the Greeks called by an entirely different name.

The coins of this town, published by Sir C. Fellows, weigh as follows: No. 12, 127 grs.; No. 6, 132¾ grs.; No. 7, 36½ grs; No. 22, 38½ grs.; No. 17, which corresponds in type with our No. 3, 40½ grs.; and No. 2, 16$\frac{4}{10}$ grs. The Pembroke coins are stated to weigh 132 and 137 grs. Disregarding the last as a solitary exception, we seem to have a standard of 133 grs. for the larger coins, which is equal to an Attic didrachm; and the smaller coins may be considered as representing the third and sixth parts of the larger.

No. 6.—A crouching Griffin, with a character resembling a cross surmounted by a semi-circle: *rev.* Triquetra in a sunk square, and the character just described, with the legend TΨNΛVOPΛ.

Silver: weight 131 grs. In the possession of Captain Graves, R.N.

No. 7.—A crouching Griffin on a base line, below which is an imperfect legend, which perhaps should be read ΨИΛVO; behind the Griffin is the same character as on No. 6: *rev.* Triquetra in a sunk square surrounded by a beading.

Silver: weight 131½ grains. In the possession of Captain Graves, R.N.

The coin No. 29, figured by Sir C. Fellows, and described at p. 463 of his work, has the same character as these, with a Griffin on the reverse; but has no legend. It obviously belongs to the same town as these two coins.

The legend of No. 7 is too imperfect to be trusted; but No. 6 is in fine preservation, and its legend is clearly *Tunējorē*, which is probably the name of a town to which we have no other clue. If I read the legend of No. 7 rightly, the first letter must have been worn off at the edge of the coin, and it should be *Tunējo*.

The character on this coin has considerable resemblance to that usually called the *crux ansata*, and to some others found on several coins supposed to be Cilician. Perhaps they are all numerals denoting the weight or value of the coins. The numeral at the end of the bilingual inscription at Antiphellus (see *ante*, No. 3, page 232,) has some resemblance to these characters.

No. 8.—A naked Man running: *rev.* Triquetra, and a small instrument like the Triquetra, but with only two arms, in a sunk square surrounded by

a beading, with a legend of eight Lycian characters.

Silver: weight 115 grs. In the British Museum.

This coin is published by Sir C. Fellows, Plate 37, No. 15, and the legend was then read *Fēgssērd;* it is re-engraved here more accurately, and it will be seen that it does not bear out the explanation which I then gave of it. It is difficult to decide upon the order in which the letters of the legend are to be read, as they are in two circles, and we must decide whether to read them in one or in two series.

In the outer circle we have three letters, *pēp*; but it must be observed that the p has not the usual form of that letter. In the inner circle are five letters, *gērss.* Perhaps the inner letters give us the commencement of the name of the town, *Gērss,* with which we are otherwise unacquainted, and the three outer characters may be numerals.

No. 9.—The fore-part of two Boars joined, on a beaded base line: *rev.* Triquetra in a sunk square surrounded by a beading.

Silver: weight 130 grs. In the British Museum.

No. 10.—A Boar, to the left: *rev.* Triquetra in a sunk square surrounded by a beading.

Silver: weight 38 grs. In the British Museum.

No. 11.—A Boar, to the right: *rev.* Triquetra in a sunk square surrounded by a beading.

Silver: weight 19 grs. In the British Museum.

No. 12.—A Quadruped (perhaps a Bull) standing to the right, *much defaced: rev.* Triquetra in a square surrounded by a beading.

Silver: weight 34¾ grs. In the British Museum. From the Rev. Mr. Daniell.

No. 13.—The fore-parts of a winged Boar, to the left: *rev.* Triquetra in a sunk square surrounded by a plain line.

Silver: weight 148 grs. In the possession of Captain Graves, R.N.

None of these five coins has any legend. Nos. 10 and 11 belong evidently to one town; and two others, much resembling them, are described and figured by Mionnet, Suppl. vol. vii. pl. iii. figs. 2 and 3. One of these has two letters below the Boar, which Mionnet in the text reads AI, but which stand in the plate AΞ, and which I should read *Sa*. Mionnet refers the coins to Aspendus, but the Triquetra proves them to be Lycian.

No. 14.—A Boar, to the left: *rev.* A four-armed instrument resembling a Triquetra, with a rope (?) knotted at one end and joined at the other to the centre of the instrument, in a sunk square surrounded by a beading; legend of five or six characters, of which only ΠT are legible.

Silver: weight 124 grs. In the British Museum. From the Rev. Mr. Daniell.

The legend is too much defaced to be made out; the letters *Pt* might be thought to connect this coin with No. 18, but they differ entirely in type and weight, and we cannot put them together without more evidence. The four-armed instrument is found on two coins: Fellows, No. 30, with a Griffin on the reverse; and Sestini, Letters, vol. vi. t. 13, No. 1, with part of a Boar. The description of these will be found in the Appendix to Fellows, p. 464, where I have given the reason for reading both legends *Tēchchefēewe*. This reading has been confirmed by finding that word complete on the corrected copy of the great Xanthus inscription, lines fifty-nine and sixty, south-east side. The name of the town to which those coins belong was probably *Tēchche*: and, for the present, our coin No. 14 may be classed with them.

No. 15.—A Lion's head to the left: *rev.* Triquetra in a sunk square surrounded by a beading, with a legend of three Lycian letters.

Silver: weight 19½ grs. In the possession of Captain Graves, R.N.

The coin is in good preservation, but the

form of one of the characters is so peculiar that it is not easy to decypher the legend; if the letter is *u*, we must read either *Uro* or *Rou*. Perhaps the doubtful character is a numeral, and the legend should be read *Ro*.

2nd. *Lycian coins without the Triquetra.*

No. 16.—A bearded Head with a cap or helmet, to the right, in a circle surrounded by a beading, with the legend ΛPTOXΓΛPΛ; *the last letter worn and doubtful*: *rev.* A female Head, to the right, in a beaded circle, *much defaced.*

Silver: weight 124¼ grs. In the British Museum. From the Rev. Mr. Daniell.

This is the only Lycian coin which can be pronounced with certainty to be that of a king or satrap: the legend is *Artoăpara*, in which we have the Lycian form of that common commencement of Persian names of kings and grandees which the Greeks rendered *Arta*, as in Artaxerxes, Artaphersus, &c. This, therefore, was without doubt the coin of a Persian satrap of Lycia, whose name has not come down to us in history.

The same name is found, with a slight variation of spelling, in two of the Lycian inscriptions. On the tomb of Ddapssāma at Pinara, (Fellows,

Pl. 36, No. 11,) the third line begins with a word which a slight and indispensable correction alters into *Arttoăpara;* but that part of the inscription is too imperfect for us to guess at the meaning.

The dative case, *Arttoăparu,* occurs in the middle inscription, below the battle-scene, of a monument at Limyra, published by Sir C. Fellows, Lycia, page 207, and republished here, No. 22, page 256. All that is yet understood of that inscription is that it was erected by Teworssēle: it is not his tomb, for we find that recorded in an adjoining inscription, No. 21; perhaps, therefore, No. 22 may be the tomb of Arttoăpara himself.

No. 17.—Head of Mercury: *rev.* A Lion walking, to the left, in a sunk square surrounded by a beading, with the legend ΑΡΟϜΨΤΕΙΛΣΕ.
Silver. In the Munich Collection.

The name on this coin is well preserved, it is to be read *Arofuteyēse:* the same word occurs on the Xanthus obelisk, line eighteen, south-west side.

The drawing was made from a cast of the reverse of the coin sent to Sir C. Fellows from Munich.

No. 18.—A Head with a helmet, to the right: *rev.* The head of Mercury wearing the petasus, to the left, in a sunk circle surrounded by a beading; with the letters ΓΤ.

Silver: weight 119 grs. In the British Museum. From the Thomas Collection.

A coin very similar to this is figured by Sir C. Fellows, No. 26, p. 461, with the legend *Pttarazu*, which I explained to be the original Lycian form of the name of Patara: the Asiatic termination in *azu* is changed by the Greeks, in many of the towns of Asia Minor, into *assos* or *essos*; while in other cases it has been dropped, as in the instance before us of *Pttarazu* changed to *Patara*; also *Sorēzu* or *Sorēze*, of the inscription at *Soura*, *ante*, No. 25, page 259, and *Pituē* in Caria, which Stephanus Byzantinus tells us was once called *Pituoussai*.

The coin before us must be referred to the town of Patara.

No. 19.—A Head to the right, *much defaced*: *rev.* Head of Mercury wearing the petasus, to the right, in a sunk circle surrounded by a beading; with the legend F𐤀𐤔SS𐤀P𐤀.

Silver: weight 129 grs. In the British Museum. From the Thomas Collection.

The legend on this coin, *Fēgssērē*, is probably

the name of a town to which the Greeks gave a new name. The coin has a close resemblance in type to that of Patara, just described, No. 18; but, besides differing in the legend, it seems to belong to another standard of weights.

The coin, No. 16, Pl. 37, Fellows's Lycia, of much earlier workmanship, with the Triquetra and the letters *Fēg*, and the fore-part of Pegasus, weighing 130 grains, must also be referred to Fēgssērē. We see from these two coins, that, even if the loss of the Triquetra indicates, as is probable, a change in the government of Lycia, Fēgssērē continued to strike its own money, and adhered to its old standard of weight.

3rd. *Persian and uncertain coins.*

No. 20.—Figure of a King crowned, three quarters length, with bow and quiver; counter-marked with a small Triquetra: *rev. Quadratum incusum.*
Silver: weight 85½ grs., of very early workmanship. In the possession of Captain Graves, R.N.

No. 21.—Same type as the above; counter-marked with a small Triquetra.
Silver: weight 81 grs. In the possession of Captain Graves, R.N.

These are two specimens of the Persian *siglos* or silver Daric, on which a small Triquetra has been subsequently struck as a counter-mark; a

third Daric similarly counter-marked was brought home from Lycia by Mr. Daniell, and is now in the British Museum.

We learn from these coins that the Persian money required to be re-stamped or marked in Lycia to give it currency in that country; which is a fact of historical value, showing a great degree of national independence in Lycia at the time. And the use of the Triquetra as the counter-mark proves that instrument to have been the national emblem of Lycia.

No. 22.—Figure of Mithra ? with wings on the shoulders and heels : *rev.* A Harpy with a chaplet in her claw, in a sunk square surrounded by a beading.

Silver. In the possession of Captain Graves, R.N.

No. 23.—Figure of Mithra ? nearly as above : *rev.* A winged Dog ? with the head of a Griffin, in a sunk square surrounded by a beading.

Silver: weight 44 grs. In the possession of Captain Graves, R.N.

These coins were found in Lycia, and are introduced here in consequence, although they are not supposed to be Lycian. Yet the emblems on their reverses have a strong family

resemblance to the Griffins, winged Boars, &c., on the Lycian coins, and belong to a similar mythology as the Chimæra, the Harpies, and Pegasus.

GENERAL REMARKS.

If we take a review of the coins described here, and in the Appendix to Sir C. Fellows's Lycia, we shall find that we may deduce from them the following historical considerations.

1st. From a very early period each Lycian town struck its own money; but they all used one common national emblem, the Triquetra. We have here the indications of a league somewhat similar to that which Strabo describes the Romans to have found in Lycia at a much later period.

2nd. The coin of Artoapara, No. 16, shows us a time when Lycia was governed by a Persian Satrap, and when, in consequence, the Triquetra is no longer used as an emblem. This is confirmed by the inscription on the obelisk at Xanthus, where the word "Satrap" occurs. on the S.E. side, line twenty-six; and more strongly by the inscription on the tomb of Payafa, now

in the British Museum, where he is called Satrap in connection with Tremileya or Lycia.

3rd. The coins of Patara, our No. 18 and Fellows's No. 26, and that of Fēgssērē, No. 19, have no Triquetra, but they are still struck in the name of the towns. Their workmanship is of good Greek art, not far from the time of Alexander. The helmeted heads on the obverses seem those of some kings or governors. It must be remarked that they have all the head of Mercury for an emblem.

4th. The coin figured by Sir C. Fellows, No. 27, p. 462, has a bearded head, with a helmet formed of the head of a lion's skin. This helmet is common on the coins of several Macedonian kings both before and after Alexander. This coin, therefore, may have been struck under the Macedonian dominion; but the legend *Teleweveve* seems to be the genitive plural of the name of the inhabitants of *Telewe*.

5th. After a long period, in which we meet with no coins which are considered Lycian, we come to the well-known series of municipal Græco-Lycian coins, of which the prevalent emblem is the Lyre: these are referable to the period of the Lycian league described by Strabo,

during the decline of the empire of the Seleucidæ.

6th. The series of Lycian coins closes with those bearing the name of the Roman emperors, which are well known.

The difficulty which we experience in referring the Lycian coins to their respective towns arises, without doubt, from the changes in the names of the towns which took place when the original language was supplanted by the Greek. The ancient geographers give us some indications of such a change, both in Lycia and the neighbouring countries; but an examination of the coins leads to the conclusion that it was nearly universal. The following changes of names are stated to have taken place in Lycia:

Τρεμιλη, the ancient name of Lycia (Steph. Byz.); and Herodotus says that in his time the Lycians were still called by their neighbours Τερμιλαι. (Books i. and vii.) The Milyæ were formerly called Solymi. (Herod. Book i.) "Arna," the ancient name of the city of Xanthus. (Steph. Byz.) "Sirbe," the former name of the river Xanthus. (Strabo, Book xiv.) "Antiphellus," formerly Habessus. (Pliny, Book v. cap. 28.) "Patara," formerly Sataros. (Pliny, Book v. cap.

28.) "Arendæ," formerly Trebendæ. (Ptolomy, Book v. cap. 3.)

The Lycian inscriptions speak constantly of the "Trămile," and the country is apparently called "Trămileya;" but it is not necessary to enter farther into this name, which has been fully discussed in the Appendix to Fellows's Lycia, page 465: my present object is with the names of the towns. We are already able to identify—

Arina, on a coin, Mionnet, vol. iii. p. 668; Appendix to Fellows, p. 457: afterwards called Xanthus.

Pēreclē, on coins and inscriptions; afterwards Limyra? *ante*, page 294.

Pttarazu, on a coin, Fellows, No. 26, page 461; afterwards Patara, *ante*, page 303.

Sorēze, or *Sorēzu*, on an inscription; afterwards Soura, *ante*, page 259.

Trōuneme, on coins and inscriptions; afterwards Tlos: see Appendix to Fellows, p. 458.

The towns of which we have coins with unknown Lycian names are the following:

Arofuteyēse, *ante*, page 302.

Gareja, Fellows, Plate 37, fig. 8, and Appendix, p. 459. Gēreja is mentioned several times on the great inscription at Xanthus.

Koprlle, Fellows, p. 460, and *ante*, page 295.

Tēlēwē? on a coin, Fellows, No. 27, with the legend Tēlēwēvevē, which is probably the genitive plural of the gentile form of Tēlēwē.

Tēchche, on a coin, No. 30 of Fellows's Appendix, p. 464, with the legend Tēchchefēewe, probably the genitive plural of the gentile form of Tēchche. Both these words occur on the inscription on the Xanthus obelisk; the latter being perfect in the cast of the inscription brought by Sir C. Fellows, and thus justifying my former conjecture of the restoration of the name.

Turējorē, on two coins, *ante*, Nos. 6 and 7, and page 297.
Fēgssērē, on a coin, *ante*, No. 19, and page 298.

Of the remaining municipal Lycian coins known, several have no legend, while others have either an initial legend only, or one which is too much defaced to be decyphered: the most intelligible are—

Gērss? Fellows, Plate 37, No. 15, and *ante*, No. 8.
Ga . . . na, the rest defaced, Fellows, Plate 37, No. 23.
Zaj, Fellows, Plate 37, No. 11.
Me, Fellows, Plate 37, No. 21.
Fēd, Fellows, Plate 37, No. 18.
Chap, Fellows, No. 64, page 461.

A few others will be found in the Appendix to Fellows, and in the present notice, which as yet defy all explanation; and some more

are given in Mionnet and Sestini, &c.; but the published legends in unknown alphabets are so little to be relied on, that it is more prudent to leave them for the present.

The only coin on which the legend is considered regal is that of Artoăpara, *ante*, No. 16.

There are other instances of a change in the name of towns indicated by the legends on their coins, but of which we have no other evidence: one instance is on the early coins of Selge, which have the name of Estfediius, which must be taken as the name of the town in a former language; another is on the early coins of Ægesta or Segesta in Sicily, which have the following legends, ΣΕΓΕ, ΣΕΓΕΣΤΑ, ΣΑΓΕΣΤΑ⌗I, ΣΕΓΕΣΤΑ⌗IB, ΣΕΓΕΣΤΑIIE, or ΣΕCΕΣΤΑ⌗IBEMI; while on later coins we have ΕΓΕΣΤΑΙΟΝ and ΕΓΗΣΤΑΙΩΝ, from which we may infer that the language of the town had changed to Greek at an early period, before the use of the vowels H and Ω. All the traditions connected with Segesta give the inhabitants a Trojan origin, so that it is among the languages of Asia Minor that we must look for analogies to the language of the earlier coins; the first four legends given above are probably initial, the

two Segestazie and Segestazibemi seem to be perfect words. There are two points in these names which have a resemblance to what is found in some Lycian coins: first, that the early name of the town must have been *Segestaza*, or *Segestazi*, which, losing its Asiatic termination, was reduced in time to Segesta, as in the cases of Soura and Patara and Pitue given above; the other is the termination in *emi*, of which we have an instance in the Lycian coins of Trouneme; and, if I am right in the explanation given of the coins of Techche and Telewe, we shall have here an instance of the formation of the gentile name in nearly the same manner, by the addition of the syllable *be*, forming *Segestazibe*.

WEIGHT OF THE LYCIAN COINS.

At present we have not the weights of a sufficient number of coins to enable us to speak with any certainty of the weights current in Lycia, especially as it appears that the towns did not all adopt the same standard. From the slight data we possess, there seem to have been two, or perhaps three, units in use in different parts of the country.

1. *The Attic Drachma of* 66½ *grains' weight.* Eleven Lycian coins, belonging to four different types, weigh between 127 and 132½ grains; and one, of another type, 134 grains. All of these must be considered didrachms of the Attic standard. The divisions appear to have been into $\frac{1}{6}$ and $\frac{1}{3}$ of the didrachm, for we have two coins weighing 22 and 22½ grains, and five others between 38½ and 42 grains (the full weight should be 44); the whole belonging to seven different towns, of which we can only name Trōuneme or Tlos, Koprlle, Fēgssērē, and Tunējorē. There are also two coins belonging to the same towns which do not fall into the above divisions; viz. one of Koprlle weighing $16\frac{4}{10}$ grains, and one of Trōuneme weighing $32\frac{3}{10}$ grains: the latter, however, is so imperfect, that it may have been the third of a didrachm.

2. *The Tyrian or Phœnician Drachma of* 58 *or* 59 *grains.* Two coins of different types, weighing 115 and 119 grains, must be reckoned equivalent to Phœnician didrachms: one of these, No. 18, is of Patara; the other, No. 8, of an unknown city. The divisions here appear also to be the $\frac{1}{6}$ and $\frac{1}{3}$ of the didrachm: thus one coin, with a boar and no legend, weighs 19 grains;

two others of the same type and one of Pēreclē or Limyra, between 37 and 38 grains.

Two other coins, No. 14 and No. 17, weighing 124 and 124¼ grains, are intermediate between the two classes above mentioned.

3. *Carian Drachma of* 50? *grains.* Six coins, belonging to five types, weigh between 145 and 149 grains: if they are tridrachms, they give a drachma of about 50 grains, which would correspond very nearly with the coinage of Rhodes, Cos, and some Carian cities which indicate a unit between 50 and 53 grains. The only division which can be referred to them with certainty is a coin without a legend, Fellows, No. 14, probably a drachma weighing 46 grains, of the same type as two others weighing 145 and 149 grains. Perhaps, however, instead of establishing a separate unit for these coins, we ought to regard them as belonging to the Phœnician system of weights, which offers examples of multiples of great complication.

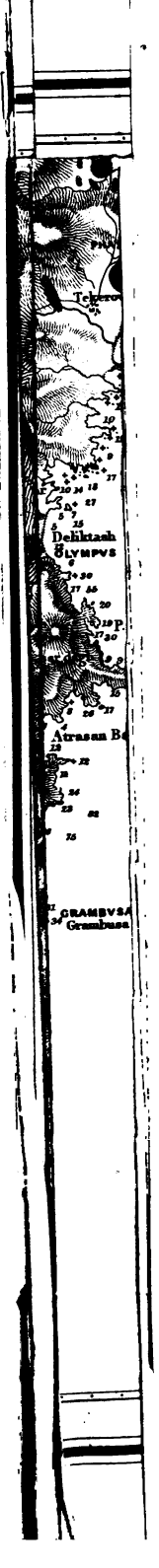
It is remarkable that three different standards of weight should be found in the coinage of the same country, but a similar anomaly is found in the Lycian works of art, which show it to have been a sort of frontier country between

the civilization of Greece and Asia, uniting many of the peculiarities of both. The language of Lycia also has the same characters, being intermediate between Greek and Persian. The Phœnician weight can only be expected to have been used in the maritime towns; and the only towns of Lycia using it which we can name, Limyra and Patara, were on the coast.

In all the weights given above, we remark a preference to a division into thirds, in which the Lycian differs essentially from the Greek system of coinage, which has a strong preference for division or multiplication by two and four. Three is also the favourite multiple in the coins of many of the cities of Cilicia, Syria, and Phœnicia.

In the preceding descriptions certain characters have been conjectured to be numerals. The evidence to that effect is not conclusive, but it is here brought together to enable the reader to judge of its value.

We find the letter , which we read G, or some character closely resembling it, on several coins, either alone or so placed that it can hardly be read as part of the name of the town; and as these are coins of several towns, and of different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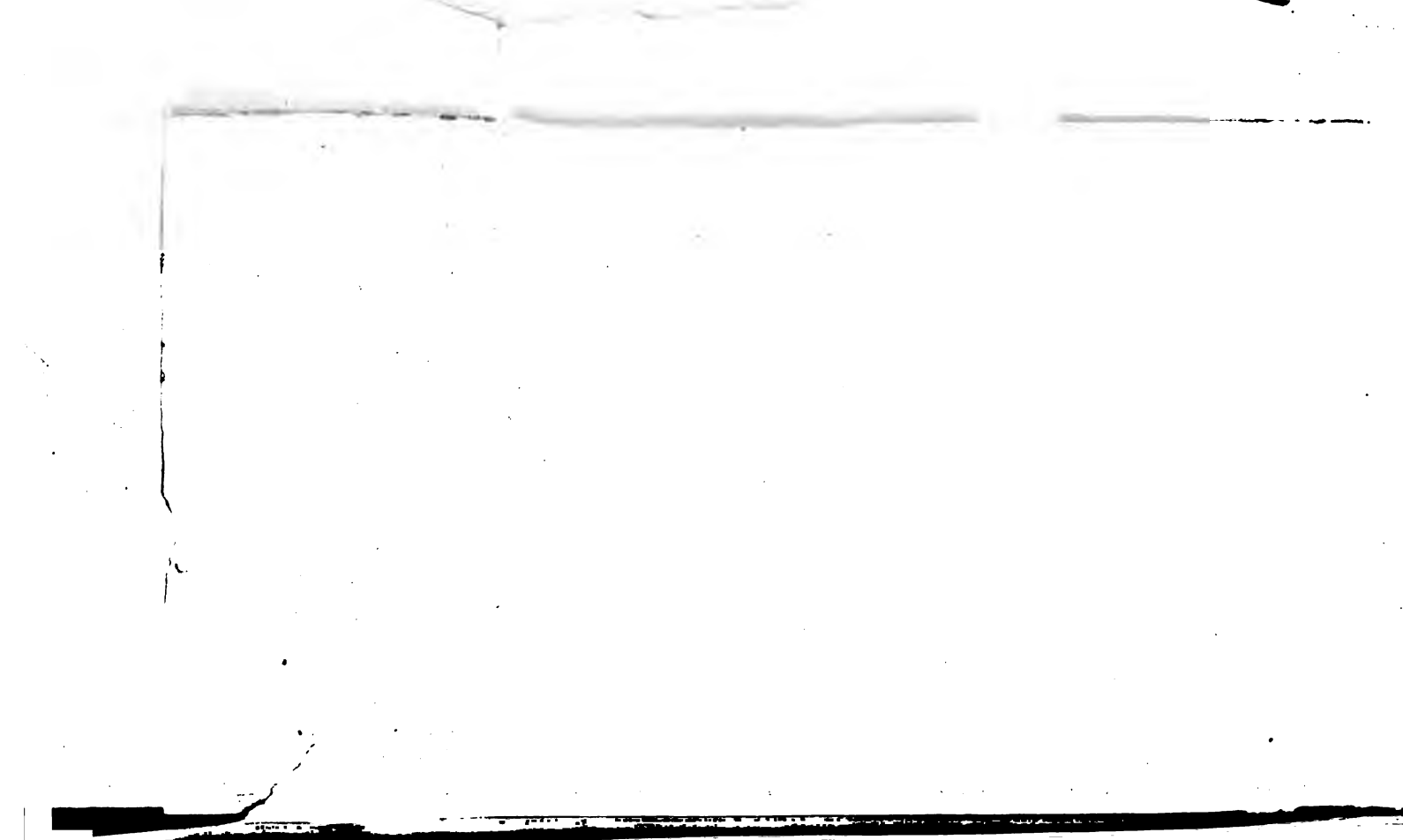

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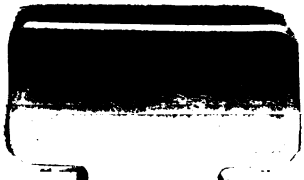
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